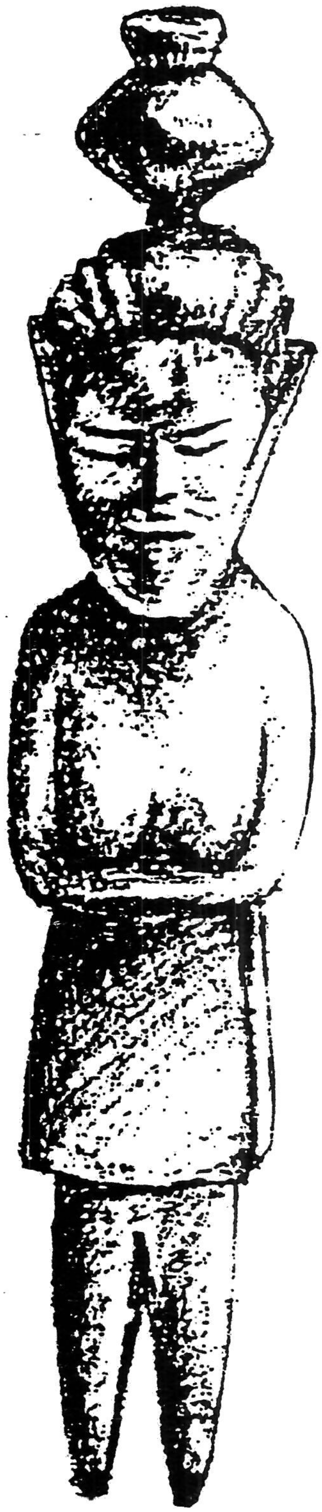
MOTHER TONGUE

JOURNAL OF THE ASSOCIATION FOR THE STUDY OF LANGUAGE IN PREHISTORY

Issue IV, December 1998



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Introduction to *Mother Tongue* IV

Continuing the *Mother Tongue* emphasis on the discussion of so-called "isolated" languages, the current issue opens with sections on two such languages: Ket and Ainu. Each of the Ket and Ainu sections is arranged so that an introductory article (by Vajda and Sidwell, respectively), supplying historical background to the problems, is followed by others that are more specialized.

The Ket section presented here is the most extensive discussion of Ket, and the Yeniseian language family, published to date in English, thanks mainly to the efforts of Edward Vajda of Western Washington University, who has also furnished us with a translation of an article by Heinrich Werner.

Ainu has frequently been discussed in the *Mother Tongue* newsletters and journals, most recently in MT II, in connection with Nihali. The articles in this section reflect a growing consensus that Ainu is genetically connected more closely with Austric (Austroasiatic, Miao-Yao, Austronesian, Kadai, Nihali), than with Nostratic/Eurasiatic (Altaic, Uralic, etc.). For further defense of the latter hypothesis, we anticipate the publication of Joseph H. Greenberg's book on the Eurasiatic (macro-) family.

A third major section of articles focuses on *apophony* (or *Ablaut*), the alternation of vowels and consonants. While the vowel apophony of Indo-European and Semitic are well-known, ASLIP Vice-President Roger W. Wescott explores vocalic and consonantal alternations in the Edoid languages of Africa (in his first article), and in the Indo-European languages (in his second article). John D. Bengtson extends the discussion to the Proto-Human level.

We conclude this issue with book reviews, and some important corrections and clarifications regarding previous issues.

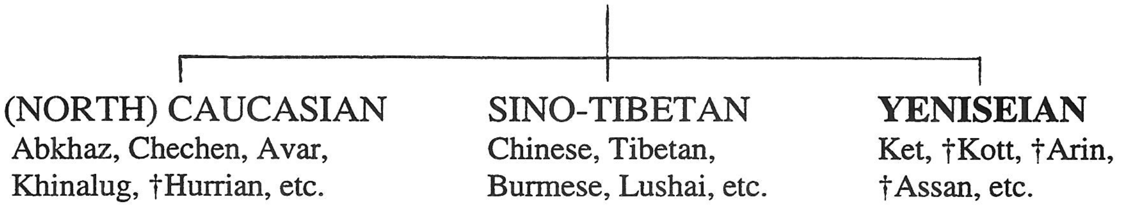
Mother Tongue Editors:
John D. Bengtson
Roger W. Wescott

A Guide to Deep Classifications

Recognizing the possible pitfalls of dendrograms (family-tree charts), these alternative models of classification are presented to help readers - especially those from non-linguistic sciences (archaeology, biology, etc.) - make some sense of the articles on **Yeniseian** and **Ainu.** († denotes extinct language. Unfortunately, Ainu will soon be in this category.)

SINO-CAUCASIAN

(Starostin[1])



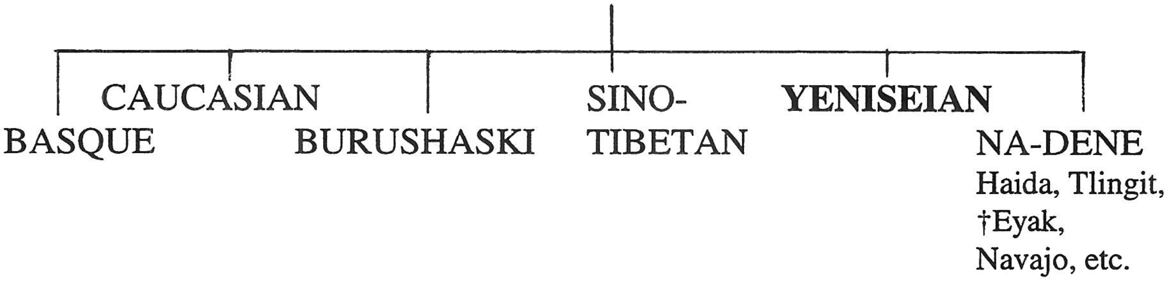
(NORTH) CAUCASIAN
Abkhaz, Chechen, Avar,
Khinalug, †Hurrian, etc.

SINO-TIBETAN
Chinese, Tibetan,
Burmese, Lushai, etc.

YENISEIAN
Ket, †Kott, †Arin,
†Assan, etc.

~ DENE-CAUCASIAN

(Bengtson[2], Blažek, Greenberg, Ruhlen[3])



BASQUE

CAUCASIAN

BURUSHASKI

SINO-
TIBETAN

YENISEIAN

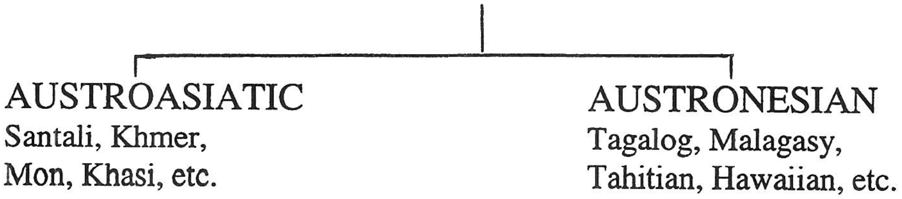
NA-DENE
Haida, Tlingit,
†Eyak,
Navajo, etc.

NOTES: 1. Starostin (MT II) accepts the inclusion of Na-Dene "with some reservations," and is "inclined to agree" that Basque, Burushaski, and Sumerian also belong here.
2. Bengtson also includes Sumerian (see MT III), and conjoins Basque, Caucasian, and Burushaski as "Macro-Caucasian."
3. Ruhlen conjoins **Yeniseian** and Na-Dene as "Northern Dene-Caucasian."

* * * * * * *

AUSTRIC$_1$

(W. Schmidt)

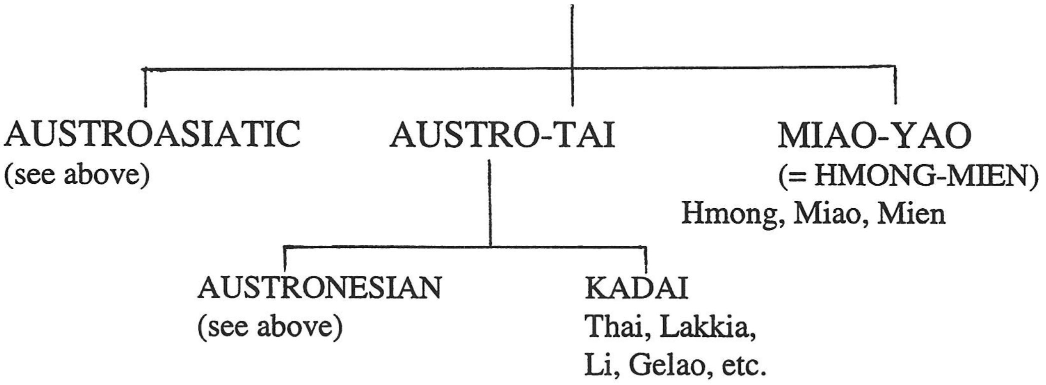


AUSTROASIATIC
Santali, Khmer,
Mon, Khasi, etc.

AUSTRONESIAN
Tagalog, Malagasy,
Tahitian, Hawaiian, etc.

~ AUSTRIC$_2$

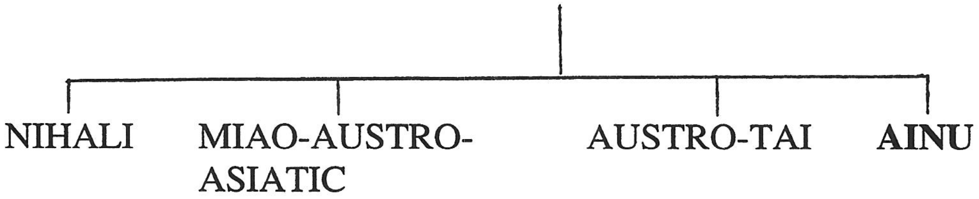
(Greenberg, Peiros*)


AUSTROASIATIC
(see above)
AUSTRO-TAI
MIAO-YAO
(= HMONG-MIEN)
Hmong, Miao, Mien
AUSTRONESIAN
(see above)
KADAI
Thai, Lakkia,
Li, Gelao, etc.

*Peiros conjoins Austroasiatic and Miao-Yao as "Miao-Austroasiatic," coordinate with Austro-Tai.

~ AUSTRIC$_3$

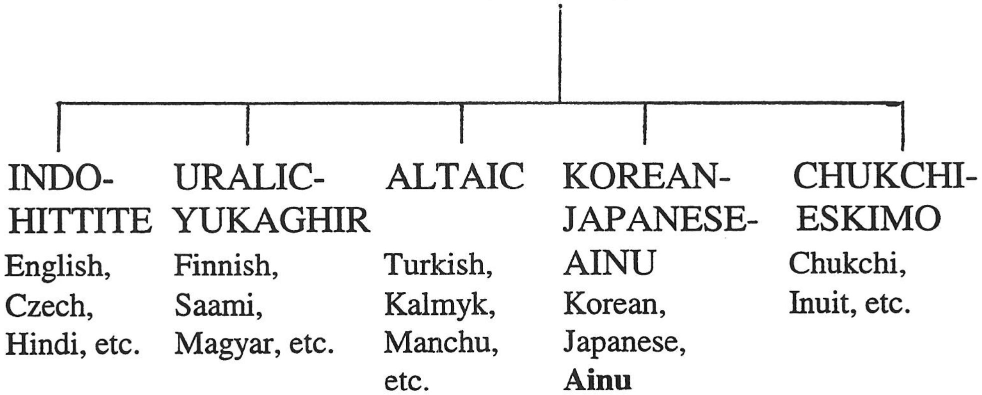
(Bengtson, Blažek [MT II])


NIHALI
MIAO-AUSTRO-
ASIATIC
AUSTRO-TAI
AINU

* * * * * * *

EURASIATIC

(Greenberg)


INDO-
HITTITE
English,
Czech,
Hindi, etc.
URALIC-
YUKAGHIR
Finnish,
Saami,
Magyar, etc.
ALTAIC
Turkish,
Kalmyk,
Manchu,
etc.
KOREAN-
JAPANESE-
AINU
Korean,
Japanese,
Ainu
CHUKCHI-
ESKIMO
Chukchi,
Inuit, etc.

[Please note that *none* of the deep classifications listed above is universally accepted by historical linguists! JDB]

The Kets And Their Language

by Edward J. Vajda

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Siberia's Kets are arguably one of the most intriguing peoples on Earth - for ethnographic as well as linguistic considerations. Most of the slightly more than 1,100 Kets reside in Turukhansk District of Krasnoyarsk Province, an area that was off limits to foreign travelers for most of the 20th century. Since the 1930's, when collectivization altered their traditional economy, most Kets have lived in small, isolated villages on the middle Yenisei and its tributaries, in locations surrounded by dense Siberian taiga far from any transportation link or major population center. At the present time it is only possible for outsiders to reach these villages by steamboat during the brief Siberian summer. This spatial remoteness is more than matched by the Kets' linguistic, cultural, and anthropological uniqueness, a coincidence that has conspired to insulate them from mainstream scholarly trends outside the former Soviet Union. Most native groups of Inner and North Asia speak Uralic or Altaic languages. The Kets do not, and consequently they have traditionally been included in a "Paleosiberian" or "Paleoasiatic" group of peoples, along with the linguistically diverse aborigines of the extreme northeast of Asia - the Yukagir, Yupik (Eskimo), Chukchi, Koryak, Itelmen (Kamchadal) and Nivkh (Gilyak). But this is a purely conventional association based on ethnographic rather than linguistic data, and Ket shows no evidence of any special relationship with the other "Paleosiberian" languages.

Today's Kets seem to offer unique evidence of the bygone linguistic situation in Inner Asia. The Ket language differs strikingly from the surrounding Uralic and Altaic tongues (Comrie 1981). Except for obvious, recent borrowings from Iranic, Samoyedic, Turkic and most recently Russian, Ket vocabulary lacks any demonstrable connection with other North or Inner Asian languages. Below is an illustrative sampling of basic Ket vocabulary taken from the southern dialect and rendered in transcription with the following accentological features: [ˑ] denotes a half-long high-rising first tone, [ˀ] denotes a rising-falling glottalized second tone, a double vowel denotes a long falling third tone, and [ˋ] denotes a short falling fourth tone:

quˀs	one (an.)	deˑs	eye	baˀŋ	earth
qɔˀk	one (inan.)	ìt	tooth	iˑ	sun
ɨˑn	two	ɔgdɛn	ear	seˑs	river
dɔˀŋ	three	tɨˑl	navel	uˑl	water
siˑk	four	təˑŋ	hair	tɨˀs	rock
qaˑk	five	qoˑl	dandruff	oˑks	tree
qɔˑ	ten	buˑl	leg	qɔ̀x	star
akus	what (inan.)	dɨˑl	finger	bɔˀk	fire
ana	who	sʌʌt	heel	tiˑk	snow (on the ground)
kirɛ	this (masc.)	aˀt	bone	taˀj	frost
turɛ	that (masc.)	huu	heart	tʌʌl	freeze
at/ap	I/my	suˑl	blood	bɛˀj	wind
u/uk	you/your (sing.)	qɔɔl	bile, gall	dɔɔ	cut, chop
bin	self	eˑj	tongue	tàŋ	drag, haul
kɛˀt	person	qoˑ	mouth	bɛ̀t	make, do
dɛˀŋ	people	qaˀ	word/speech	tìx	snake
ɔˑp	father	ɔɔŋ	healthy	qɨˑt	wolf
aˑm	mother	kiˀ	new	tiˑp	dog
qiˑm	woman	aqta	good	kùn	wolverine
hiˑɣ	man	seˑl	bad	teˑl	mammoth
bisɛp	brother/sister	siˑ	night	ùt	mouse

dɨˑl	child	qɔnɔks	morning	duˑm	bird
hɨˀp	son	qəˑt	winter	tʌˀ	salt
huˀn	daughter	siˑl	summer	quˀs	teepee
sɛniŋ	shaman	kʌˀn	light, bright	iˑs	fish, meat

An equally sharp difference between Ket and other Siberian languages appears in the grammar and certain aspects of the phonology. Like all known Yeniseian languages, modern Ket lacks synharmony, has a system of word tones, uses grammatical ablaut in the basic vocabulary, contains a noun class system based on the opposition "living/non-living," and exhibits a highly complex polysynthetic verb with several series of actant markers. None of these features are present elsewhere in Siberia (though a different type of polysynthesis is prevalent in Chukchi and other languages along the North Pacific Rim). Here are a few sample Ket verb conjugations:

single actant		two actants	
ad **d**ansibɛt	I think	bu ad da**ba**tɔŋ	she (da-) sees me
u **k**ansibɛt	you think	bu u da**ku**tɔŋ	she sees you
bu **d**ansibɛt	he thinks	bu bu da**a**tɔŋ	she sees him
bu **da**ansibɛt	she thinks	bu bu da**i**tɔŋ	she sees her
ətn **d**ansibɛt**n**	we think	bu ətn da**dəŋ**tɔŋ	she sees us
əkn **k**ansibɛt**n**	you (pl.) think	bu əkn da**kəŋ**tɔŋ	she sees you (pl.)
buŋ **d**ansibɛt**n**	they think	bu buŋ da**aŋ**tɔŋ	she sees them (masc.)

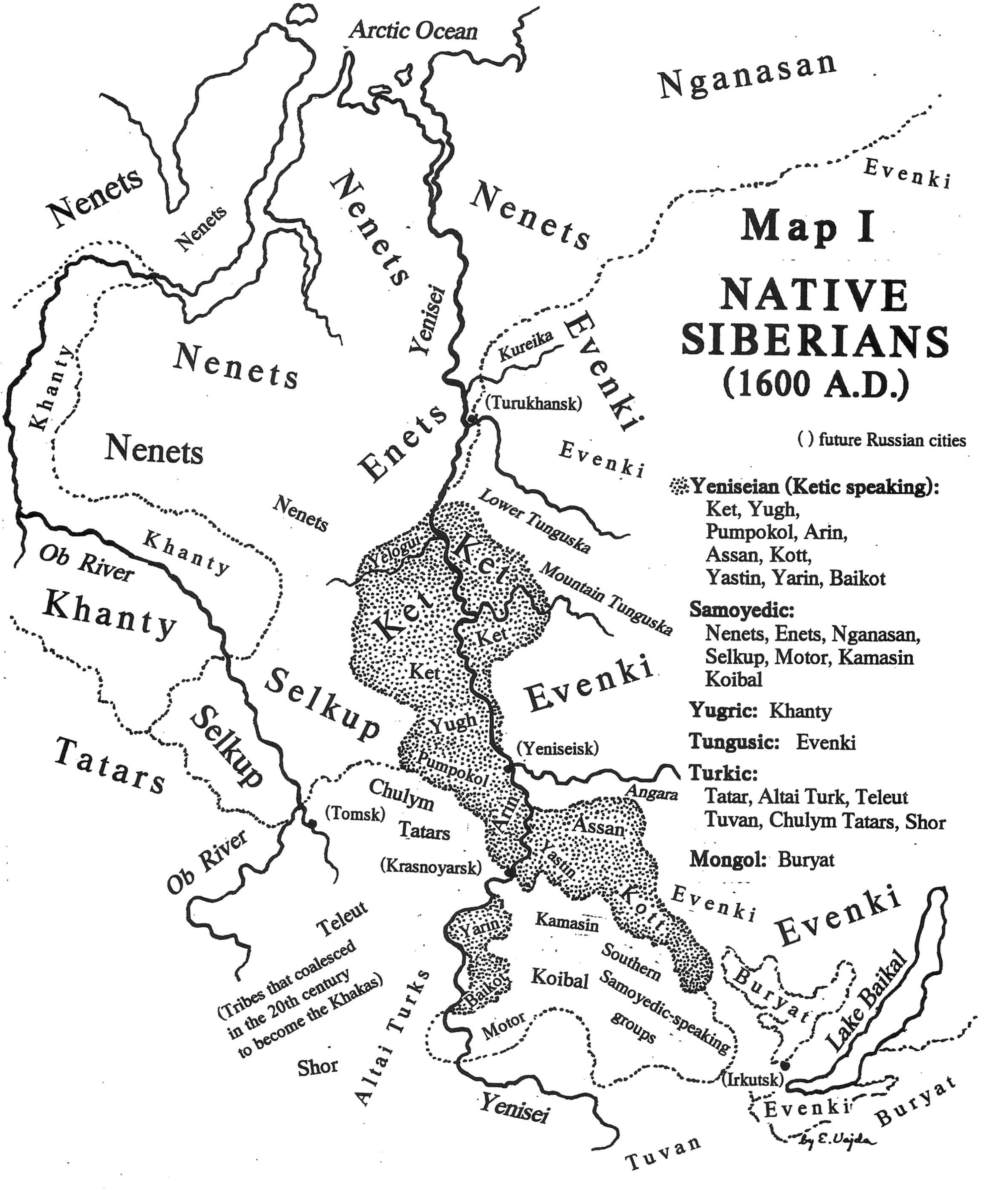
The Ket verb is extremely complex with a general structure more closely resembling the template morphology of such languages as Tlingit and Navajo rather than the layered morphology found throughout the rest of North Asia (see Vajda, in preparation). Ket also seems to contains a number of unique features not found in any other language group, such as frequent double marking of the grammatical subject. The paradigms given above represent only two of a large number of permissable actant marker combinations (see H.Werner 1997c).

Linguists have had to journey far afield to find potential relatives for Ket. As it turns out, significant typological parallels link Ket with languages far removed in space and time, notably Burushaski in Northern Pakistan, North Caucasic (Abkhaz-Adyg, Nakh, Dagestanian), Sino-Tibetan-Burmese and Na-Dene (Athabaskan, Eyak, Tlingit, Haida) in western North America (the linguists who have proposed these connections are discussed below). These similarities may in fact prove to originate from some remote common origin, since the Kets are obviously recent arrivals in their present middle-Yeniseian home. All known Yeniseian languages - including not only Ket but the recently extinct Yugh, Arin, Pumpokol, Assan, and Kott - are closely related and probably began diverging from a common ancestor spoken in the South Siberian forest-steppe zone as recently as 2,200 years ago, perhaps in response to the Hunnic expansion into southwestern Siberia (Kostjakov 1979).

The 1989 Soviet census counted 1,113 Kets, slightly less than half of whom (48.3%) reported they could speak Ket fluently. Virtually all Kets today speak Russian natively, so there are no longer any monolingual Ket speakers. The language is still being learned natively by children in at least three small villages where the Kets comprise a majority of the population: Kéllog, Surgútikha and Madúika (sometimes spelled Modúika). Each of these villages contains a slightly different dialect: Southern Ket, the variant with today with the largest number of speakers, is found in Kéllog; Central Ket is spoken in Surgútikha; and Northern Ket is spoken in the Madúika area. Several other villages where Ket was spoken by much of the population before the late 1950's no longer exist, the Ket speakers having been dispersed to neighboring towns where they now constitute an ethnic minority in danger of losing their language in a generation or two. Thanks to persistent efforts by linguist Heinrich Werner, in 1988 the Soviet Ministry of Education officially adopted a Cyrillic-based alphabet consisting of 39 letters. During the ensuing decade several language textbooks have been published, and more are currently in preparation. Ket is now taught as an elective subject in the curriculum of a few Turukhansk District elementary schools and is coming to be used as a written medium by a few native Ket scholars. Nevertheless, the long-term future of Ket as a living language must be regarded as tenuous. The economic situation in the Ket areas of Turukhansk District is precarious and shows no sign of improving, with high rates of unemployment and alcoholism. In such an environment it is unclear whether efforts to expand or even maintain education in the medium of Ket will ultimately succeed. Of still more pivotal importance, any future dispersal of the few remaining concentrations of speakers could easily lead to the extinction of Ket as a viable, natural form of communication within a few generations. The sad example of the Yugh people, the Kets' longest surviving ethnic kin, is soberingly instructive in this regard. Until the early 1990's, Yugh (which some linguists regard a divergent dialect of Ket) was spoken in the villages of Yártsevo and Vórogovo, south of the Kets' present location. Now that the last native speakers of Yugh have died, the few remaining Yughs are virtually indistinguishable from their Russian neighbors in language and lifestyle (Werner 1997b).

Some explanation of the potentially confusing variety of names that past scholars have applied to the Kets and Yughs might prove helpful here. Before the Soviet era, both groups were usually called the "Yenisei Ostyaks." Russians traditionally used the term "Ostyak" when referring to any of the non-Turkic speaking groups living in the West Siberian taiga. The word was apparently borrowed from the Tatars after Yermak's victory over Khan Kuchum in 1582, which soon led Russian penetration and annexation of all North Asia, including the territory inhabited by Yeniseian peoples. In pre-Soviet times, Russians also applied the term "Ostyak" to the Yugric-speaking Khanty, and called the Selkup "Ostyak-Samoyeds." The resultant ambiguity, as well as the word's negative social connotations, caused it to be abandoned as an ethnonym in the Soviet Union during the 1930's. In the case of the Kets, it was replaced first by the term "Yeniseians" and soon after simply by "Ket" (from the native Ket word kɛˀt, meaning "man," "person" or "human being"). When speaking their own language, the Kets refer to themselves as kʌndɛŋ, meaning "light people," (the masculine singular is kʌnaskɛt, the feminine kʌnasam), though the word ɔstɨk (plural ɔstɨɣan), borrowed from Russian, is also used, especially in the presence of non-Kets. When speaking Russian, Kets nowadays use the standard ethnonym *kéty* (the Kets), though some have adopted the vocative singular *ketó* as a collective ethnonym for their nationality, a practice popularized by the German ethnographer Hans Findeisen in the 1920 and 30's. In much of the literature on Yeniseian languages, particularly that written between 1925 and 1970, Yugh is most often referred to as Sym Ket or the Sym dialect of Ket, while Ket proper is referred to as Imbat Ket (after the name of one of the 18th century Ket territorial groupings, the Inbaks). In addition, the southern dialect spoken in the village of Kellog has often been called Upper Imbat Ket, while Northern and Central Ket, due to their relative position downriver along the course of the Yenisei, are sometimes called Lower Imbat Ket.

Besides the three living Ket dialects and the recently extinct Yugh language (or Sym Ket dialect), several other Yeniseian languages are known to have been spoken at the beginning of the 17th century in areas south of the Kets' present-day homeland (see Map I). These include Arin, Pumpokol and Assan, whose last speakers died before the end of the 18th century; little survives of them except substrate toponyms and short word lists compiled by early scholars and explorers. Another Yeniseian language, Kott, survived into the late 19th century and was recorded in considerable detail by the famous Finnish linguist Matthias A. Castrén. Other groups known to have been Ketic-speaking include the Yarins (Buklins), Yastins, and Baikot, as well as the Ashkyshtym group among the Turkic-speaking Bachat Teleuts and the Koibalkyshtym among the Samoyedic-speaking Koibals,


Arctic Ocean
Nganasan
Evenki
Nenets
Nenets
Nenets
Nenets
Nenets
Nenets
Nenets
Yenisei
Kureika
Evenki
(Turukhansk)
Khanty
Enets
Evenki
Lower Tunguska
Khanty
Ob River
Yelogui
Ket
Mountain Tunguska
Khanty
Ket
Ket
Ket
Evenki
Selkup
Selkup
Yugh
Tatars
(Yeniseisk)
Pumpokol
Chulym
Angara
(Tomsk)
Arin
Assan
Tatars
Ob River
(Krasnoyarsk)
Yastin
Teleut
Evenki
Kott
Evenki
Yarin
Kamasin
Southern
Samoyedic-speaking
groups
(Tribes that coalesced in the 20th century to become the Khakas)
Baikot
Koibal
Buryat
Lake Baikal
Altai Turks
Motor
Shor
(Irkutsk)
Yenisei
Evenki
Buryat
Tuvan
by E. Vajda

Map I

NATIVE SIBERIANS (1600 A.D.)

( ) future Russian cities

Yeniseian (Ketic speaking):
Ket, Yugh,
Pumpokol, Arin,
Assan, Kott,
Yastin, Yarin, Baikot

Samoyedic:
Nenets, Enets, Nganasan,
Selkup, Motor, Kamasin
Koibal

Yugric: Khanty

Tungusic: Evenki

Turkic:
Tatar, Altai Turk, Teleut
Tuvan, Chulym Tatars, Shor

Mongol: Buryat

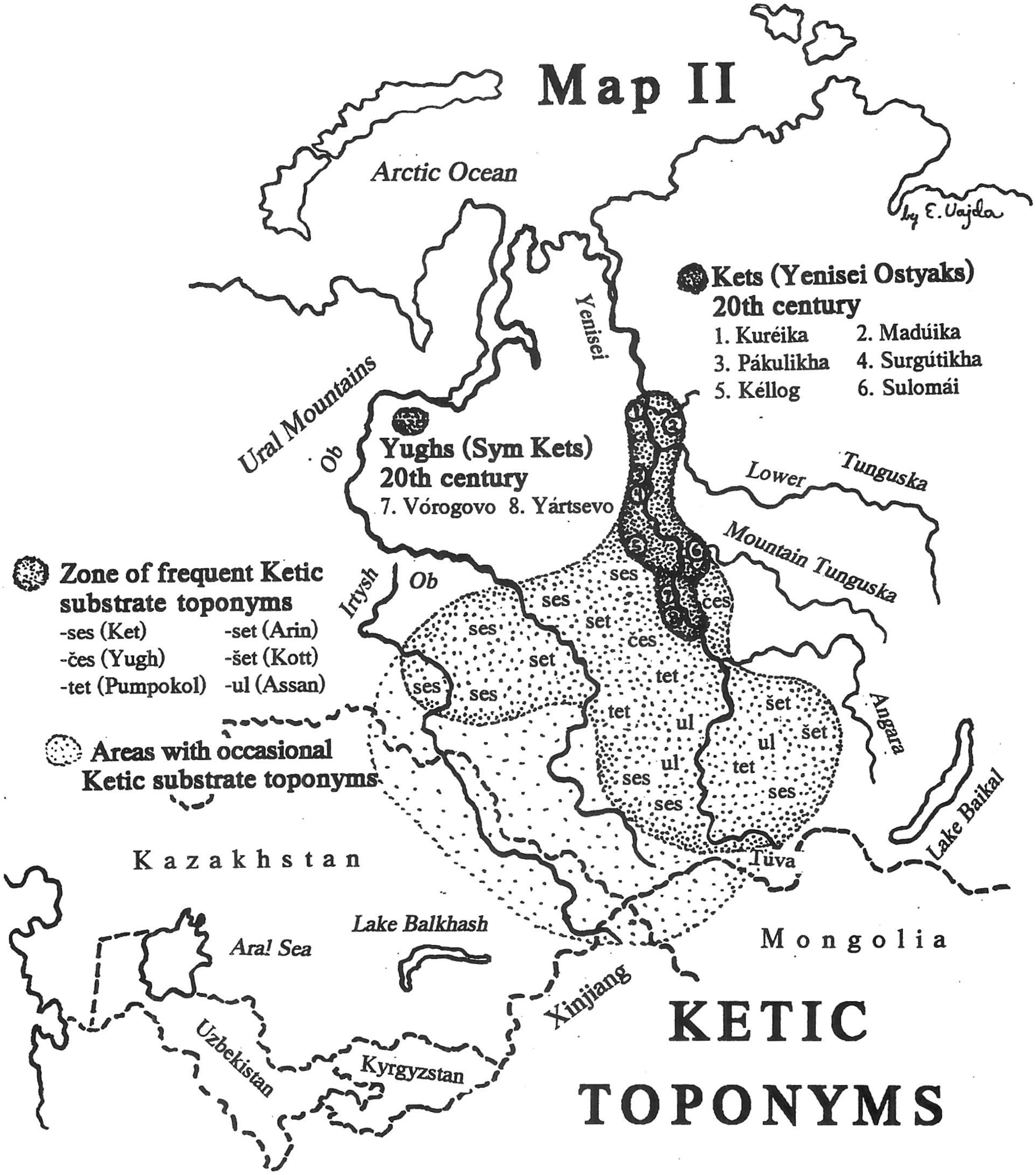
though nothing survives of the languages these peoples originally spoke except a few toponyms and clan names. By the end of the 19th century, all of the southern Ketic-speaking groups had been assimilated by their Turkic, Samoyedic or Russian neighbors, leaving only the Yenisei Ostyaks (Kets and Yughs) along the Central Yenisei. However, evidence from studies of Ketic substrate hydronyms (names of rivers and other bodies of water), many of which are found in areas southwest of the known location of Yeniseian peoples (see Map II), indicates that Ketic-speaking peoples once occupied a vast area of South Siberia and Inner Asia stretching from at least northern Kazakhstan and the upper Irtysh watershed to the Altai-Sayan mountains and westward to the Angara River basin (a discovery made by the noted linguist Andreas Dulzon; see Dul'zon 1959). Many 20th century Turkic, Samoyedic and Mongol-speaking groups in this same area - notably the Chulym Tatars, Shor, Khakas, Northern Altai, Todzhi Tuvans, Tofalars, Western Buryats, and the now extinct Kamasins - display varying degrees of linguistic and ethnic influence inherited from some bygone Ketic population. No doubt many other Ketic languages and dialects existed in the past but became extinct before the coming of the Russians at the end of the 17th century.

There have been attempts to link the Kets with prehistoric South Siberian cultural complexes, most notably the sedentary Karasuk culture (1200-700 BC) of the Minusin Basin. Linguistic evidence (such as the Ket word for bread, naˀn), suggests that Ketic speakers lived in contact with the Iranian-speaking tribes of the Afanasyevo and Andronovo cultures of Inner Asia long before the rise of full pastoral nomadism (Harmatta 1992: 377-378). Other theories regard the Kets as direct descendants (or at least the nephews) of the Dingling, expelled from Northern China after 1700 BC (Gumilev 1959); or the Huns, who began disrupting the food-producing cultures of South Siberia after the 4th century BC (Pulleyblank 1963). Ket folklore clearly combines elements originating in the southern steppes among pastoral and sedentary farming cultures with elements of aboriginal taiga hunting and fishing cultures. Research has show that Ket traditional dress incorporates southern designs adapted to a circumpolar climate, with some winter articles of clothing borrowed from the neighboring Nenets and Enets (Ivanov and Toporov 1964). Ket legends recount attacks by warlike tribes that forced the Kets to flee across high mountains and ever northward into the taiga (Anuchin 1914). Most likely, these stories echo real migrations across the Altai and Sayan mountains in response to incursions by Huns (during the last few centuries BC) and Yenisei Kirghiz (after 500 AD). According to Ket mythology, the benevolent goddess Tómam stayed behind in the south, where each spring she waves her cape into the wind to detach feathers that become the waterfowl and other game birds who migrate north to sustain the Kets in their new home. In contrast, the evil goddess Qosedam, driven to the uttermost north by the hero Alba and the first shaman Doh, sends cold and death southward each year to afflict the Kets. In the taiga along the middle reaches of the Yenisei, intrusive Ketic-speaking tribes displaced or absorbed the earlier inhabitants. Some of these were undoubtedly Samoyedic, since the northernmost Kets are known to have dislodged Nenets and Enets groups from the Maduika area as late as the early 19th century in response to Russian usurpation of their fishing and hunting grounds south of Turukhansk. During prehistoric times, still other, unknown peoples probably coalesced with the Ketic groups. It is plausible that the Yughs represented the Keticized remnant of taiga aborigines who inhabited the middle reaches of the Yenisei before the Kets' arrival (Alekseenko 1975). The Kets have lived in their present Yenisei homeland long enough for tɨj, the native Ket word meaning "downriver," to have acquired the meaning "north," while ut means both "upriver " and "south."

Before Soviet collectivization efforts in the 1930's, the Kets and Yughs formed one of the last islands of true hunter-gatherer-fishers in North Asia, engulfed on all sides by food producers - primarily Uralic or Altaic peoples who had also spread northward during the past two thousand years. Although Ket culture contains elements borrowed from farmers, reindeer breeders and even steppe nomads (some southern Yeniseian groups were known for their ironworking skills), the use of domestic reindeer by some Ket groups was a recent acquisition from Samoyedic neighbors, and traditional Ket culture as recorded in the early 20th century still predominantly reflected age-old hunting and gathering patterns. Otherwise, the only domesticated animal was the dog, who assisted in some aspects of the hunt but was not regularly used for traction. The native Ket words for months of the year derive from these ancient seasonal patterns (Alekseenko 1967). In spring and summer, several Ket families would converge to set up their conical birch-bark teepee (quˀs) beside rivers, lakes and other rich fishing areas. During the hottest time of the year, some Kets took up residence in a large covered houseboat (ilimka), a dwelling type unique to the Yenisei, which could be maneuvered beyond the range of the swarms of bloodsucking insects that infested the water's edge during the brief Siberian summer (one Ket word for the month of July, sujdɔqqip, literally means "mosquito-flying moon"). The fall and early winter were times of wandering, when the group bade farewell to the river and dispersed into the taiga interior. Some sailed up the Yenisei's tributaries on their *ilimkas* to reach their traditional hunting grounds. Each family group had its own hunting trail, and the men would journey into the forest in search of reindeer, elk, or bear, as well as fur-bearing animals and game birds. Hunters traveled on foot, each day moving farther and farther away from their family's encampment. During the coldest months, when the daylight was at its lowest ebb, the hunting would cease, and families subsisted on stored provisions. The entire group waited out this period in a cluster of semi-subterranean dwellings (baŋŋus) of extremely archaic construction. When the daylight began to lengthen again, the hunters resumed their work, accompanied by their dogs. Leaving their families behind for a time, they traversed long distances on wide, padded skis (aslɛŋ), dragging their supplies behind them on a hand sled (suul). After the spring thaw, the Kets would return to their fishing areas near the water. Despite the gradual adoption of European tools and weapons, even in the 20th century other Native Siberians regarded the Kets as experts in bow and arrow construction. The traditional Ket economic cycle thus offers us a special window into the remote prehistory of the Asian interior by providing a glimpse of life before the spread of the far-reaching cultural and economic innovations that attended the rise of the Indo-European, Turkic and Mongol pastoralists.

Alongside their linguistic and cultural peculiarities, the Kets also exhibit relic elements in the realm of physical anthropology. Although Kets have intermarried for centuries with their Selkup and other Mongoloid neighbors, they show distinct genetic traces of having once belonged to a physical type closer to Southeast Asians (Tibetans, Burmese, etc.) than to neighboring North Asians (Gokhman 1982; Grahovac 1998). It is also within the realm of possibility that anthropologically (and linguistically) the Kets may represent long lost cousins to some of the tribes who migrated out of Asia into North America millennia ago (Ruhlen 1998; see below for more discussion of this hypothesis).

No one knows how long Ketic-speaking peoples occupied Inner Asia and South Siberia before these areas were incorporated into the Russian state during the 17th century. Some of the Chinese references to "barbarian tribes" in this region from Tang times onward may reflect their historic presence. The first unambiguous documentation of Yeniseian peoples and languages comes only after Russian expansion into western Siberia following Yermak's campaign of 1582. The Cossacks, fur trappers, and government officials who flooded into the taiga in search of personal enrichment left behind valuable bits of information on Yeniseian lifeways in the form of official reports, fur payment records and other historical documents. After Native Siberians began to be baptized as nominal Christians in the mid 17th century, church records furnish additional information on demographics, social organization, and clan distribution. Diaries and written accounts left by diplomats and other persons traveling through the Yenisei area also contain unique descriptions of the Kets and their extinct cousins, the Yughs, Kotts, Assans, Arins, and Pumpokols.


Map II

KETIC TOPONYMS

Arctic Ocean
by E. Vajda
Kets (Yenisei Ostyaks)
20th century
1. Kuréika
2. Madúika
3. Pákulikha
4. Surgútikha
5. Kéllog
6. Sulomái
Yenisei
Ural Mountains
Ob
Yughs (Sym Kets)
20th century
7. Vórogovo
8. Yártsevo
Lower Tunguska
Mountain Tunguska
Zone of frequent Ketic substrate toponyms
-ses (Ket)
-set (Arin)
-čes (Yugh)
-šet (Kott)
-tet (Pumpokol)
-ul (Assan)
Irtysh
Ob
ses
set
čes
tet
ul
šet
Angara
Areas with occasional Ketic substrate toponyms
Lake Baikal
Tuva
Kazakhstan
Mongolia
Lake Balkhash
Aral Sea
Xinjiang
Uzbekistan
Kyrgyzstan

The true beginning of Yeniseian studies came in the mid 1720's, when Peter the Great, while lying on his deathbed, commissioned scholars to describe his mysterious eastern realm. Peter's interests encompassed not only Siberia's flora, fauna and other natural resources, but also the languages and customs of its native peoples. As a result, a number of scholars recorded vocabulary from Arin, Pumpokol, and Assan before these languages became extinct by the end of the 18th century. These early linguistic findings found their way into Peter Simon Pallas's famous *Comparative Dictionary of the World's Languages*, commissioned by Catherine the Great. Without this priceless legacy, little comparative work in Yeniseian linguistics would be possible today. The first extensive study of Kott, Yugh and Ket was conducted by the indefatigable and prolific Finnish linguist Matthias A. Castrén (Castrén 1858). Castrén worked extensively with five of the last native speakers of Kott, and his detailed descriptions of Kott phonology and grammar represent a unique achievement. Likewise, Castrén's meticulous and pioneering descriptions of Ket and Yugh established a solid foundation for the modern study of these languages, to which nothing significant was added until well into the 20th century.

The most complete and up-to-date synchronic descriptions of Yeniseian languages available today are the work of Heinrich Werner, a linguist working in Bonn, Germany, who has produced a truly prodigious volume of scholarship since emigrating from Russia in 1991. During the past several years, he has published a series of fundamental monographs totalling over 1,000 pages of text. These include book-length studies of several key aspects of comparative Yeniseian linguistics: the class system (Werner 1994), general typology (Werner 1995), accentology (Werner 1996), and word building (Werner 1998). In addition, he has produced fundamental monographs that will probably forever remain the definitive reference on Kott (Werner 1997a) and Yugh (Werner 1997b). Finally, his 400-page masterpiece, *Die ketische Sprache* (Werner 1997c), represents the most extensive and accurate description of Ket grammar available in any language, and all future studies of Ket will necessarily draw heavily from the material contained in this book. In publishing these linguistic descriptions, Heinrich Werner has succeeded in completing the work begun by Castrén nearly 150 years earlier. Currently, he is involved in the preparation of an all-inclusive comparative dictionary of the Yeniseian languages, a work that will greatly assist future diachronic studies involving Ket.

In contrast to the abundance of material produced in Russia during the second half of the 20th century, and in Germany by Heinrich Werner during the past several years, relatively little about the Kets or their language has yet appeared in English-speaking countries. A notable exception is the book *Paleosiberian Peoples and Languages: A Bibliographic Guide* (Jakobson et al. 1957), which contains substantial material on the Kets. Another is an English translation of an article on Ket ethnography (Popov and Dolgikh 1964). Hopefully, my recently completed book *Yeniseian Languages and Peoples: A History of Yeniseian Studies with Annotated Bibliography and Source Guide*, will stimulate more scholarly attention to the Kets and their fascinating language. Also, in 1999 LINCOM Europa is expected to publish my description of Ket grammar as volume 204 of its series *Languages of the World/ Materials*. In the future, I hope to write a comprehensive ethnographic history of the Kets and a comparative grammar of the Yeniseian languages. By far the best and most complete account of Ket history and ethnography available remains E.A. Alekseenko's*The Kets: Historical-Ethnographic Essays,* a book written in Russian (Alekseenko 1967).

The most persistent interest in Ket by scholars beyond the borders of the former Soviet Union has come from historical linguists, particularly those working on questions involving deep genetic relationships. As the sole surviving member of the Yeniseian language family, Ket is often described as a language isolate with no close, universally accepted linguistic relatives other than the extinct Yugh, Kott, Assan, Arin and Pumpokol. However, since the publication of Castrén's monograph in 1858, many linguists have proposed deep genetic connections linking Yeniseian to a variety of other language groups. The first was Anton Schiefner's proposal connecting Yeniseian with Sino-Tibetan (included in the editor's preface to Castrén 1858). To this were added the extinct Southwest Asian language isolates Sumerian and Hattic (Marr 1926), various North Caucasian language groups (Bouda 1948), Burushaski (Bouda 1950a; Toporov 1971), and Basque (Lafon 1951; Holmer 1953; Bouda 1956; Tailleur 1958). The proposal that Ketic-speaking peoples may have been connected in the distant past with Native Americans, an idea that first appeared in Strahlenberg 1730, is perhaps the most intriguing possibility. The Italian linguist Alfredo Trombetti (1923) remarked on the similarity between Yeniseian *de'ng* (people) and Athabaskan *dene* (people), suggesting a genetic link between these language groups. V.G. Bogoraz also supported an ethnographic connection between Yeniseians and American Indians (Bogoraz 1927b) an idea extended again to linguistics by H. Collins (1954). Interestingly, Edward Sapir suspected a connection between Sino-Tibetan and Na-Dene in the early 1920's, but was apparently unfamiliar with Yeniseian data and did not consider Ket in his analysis (Bengtson 1994). In the 1960's all of these interconnected hypotheses received the general approval of Andreas Dulzon in Tomsk (Dul'zon 1968) and several noted Moscow-based ketologists (Ivanov, Toporov, and Uspenskij 1968).

Until recently, however, the evidence offered in support of these proposals was suggestive at best and consisted of nothing more than a small quantity of random lexical parallels and general similarities in typology. The first detailed linguistic study which challenged the notion that Ket was a language isolate came in the early 1980's, with the publication of Sergei Starostin's "Proto-Yeniseian reconstruction and the external connections of the Yeniseian languages" in volume three of *Studia Ketica* (S.Starostin 1982). This lengthy article offered the first systematic reconstruction of Proto-Yeniseian phonology. A second article soon appeared (S.Starostin 1984) comparing this data with lexical and grammatical forms from North Caucasian and Sino-Tibetan to support the idea of a deep genetic connection between these three families. Although Starostin did not specifically include Burushaski, Basque, Na-Dene, or the extinct languages of Southwest Asia in his analysis due to the absence of reconstructed forms for these groups, he did not refute their possible connection with Yeniseian. Since the 1980's, several linguists in the West have joined Starostin to publicize his data in English (see especially S.Starostin and Ruhlen 1994) and to fortify or extend his hypothesis with their own, additional findings. At the present time, the long-range genetic study of Yeniseian is enjoying a particularly productive period. Sergei Starostin has edited a volume of *Studia Ketica* (S.Starostin 1995a), which includes a reconstruction of the Kott verb system by Starostin's son (G.Starostin 1995), and a comparative Yeniseian dictionary containing the most extensive set of Proto-Yeniseian reconstructions published to date (S.Starostin 1995b). Several other historical linguists are currently working on problems involving Yeniseian. These include Mikhail Filimonov (Tomsk), who has published data supporting a link with North Caucasian and Sino-Tibetan, as well as Sumerian and other extinct languages of Southwest Asia (Filimonov 1987); the archeologist Aleksei M. Maloletko (Tomsk), who has argued that the Yeniseians migrated northeastward across the Irtysh from a location near their North Caucasian linguistic relatives in Southwest Asia (Maloletko 1993, 1995); Václav Blazˇek (Bonn) and John Bengtson (Minneapolis), who have published a number of articles arguing for the existence of an extensive Dene-Caucasian language phylum (see especially Blazˇek and Bengtson 1995, and Bengtson 1998) that combines Basque, North Caucasian and Burushaski into a branch of Dene-Caucasian called Vasco-Caucasian. This branch is connected to three additional ones: Yeniseian, Sino-Tibetan and Na-Dene. Finally, Merritt Ruhlen (Stanford University) has recently argued that among the eastern three banches of Dene-Caucasian, Yeniseian shows the closest affinity to Na-Dene (Ruhlen 1998b). Ruhlen's article, published in the *Proceedings of the National Academy of Sciences*, offers additional lexical evidence supporting the view that Ket exhibits a demonstrable connection with a major Native American phylum. These findings have, for the first time, generated attention to the Kets in the mainstream American press. The essentially complementary views of the many linguists working on various aspects of the

Dene-Caucasian hypothesis will be brought together in this volume of *Mother Tongue*, with the important result of generating much needed peer review and broadening the forum of scholarly debate on the genetic status of the Yeniseian language family.

Regardless of the ultimate consensus to emerge regarding the origin of the Yeniseians and their languages, it is obvious that the modern-day Kets represent a unique topic of scholarly interest to linguists, historians and anthropologists alike. Today, when the ethnic survival of the Kets is threatened as never before, scholars cannot wait indefinitely for an opportunity to study the last remaining Yeniseian language and people. The material assembled here will hopefully both inspire and assist Yeniseian research into the 21st century.

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Reconstructing Proto-Yeniseian

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[Translator's note: The material presented below was first published as a chapter of the book *Comparative Phonology of the Yeniseian Languages* (Werner 1990: 227-239). The author has given permission for it to be translated from the original Russian for publication as a separate article in *Mother Tongue* IV. The transliteration system used below requires a few preliminary remarks, since not all of the Yeniseian examples reflect the same degree of phonetic precision. The Ket and Yugh examples (all recorded in the 20th century unless otherwise stated) are highly accurate, while materials from the extinct Arin, Pumpokol, Kott and Assan, which were not recorded using modern methods, are probably somewhat less so. Also, the author's original notation of Yeniseian tones has not been retained in this translation. Heinrich Werner was the first to discover and describe the system of phonemic tonal contrasts in Yugh (Werner 1968) and Ket (Werner 1969). Because in most instances the tones involve non-melodic as well as melodic features, it is possible to ascertain the correct tone for most Ket and Yugh words from the vowel quality alone. A half-long vowel such as in the word /suˑl/ blood, corresponds to Werner's first tone, which is characterized by a high flat or slightly rising pitch. Second-tone syllables contain a glottalized short vowel (/bɔ^{ʔ}k/ fire), characterized by a rise and sharp drop in tonality. The third tone accompanies long, non-pharyngealized vowels (/baːt/ old man), which are pronounced with a rising, then gently falling pitch. The fourth tone, which has a falling pitch, is the least homogenous across the Yeniseian languages: in Yugh, fourth tone syllables are long and pharyngealized (/i^{h}ːt/ tooth), in Northern Ket (N.Ket) they are long falling and disyllabic /iːti/ tooth), and in Southern Ket (S.Ket) they are a single short syllable with sharply falling pitch (/it/ tooth). Below is a summary of these four tonal contrasts, marked using Werner's superscript numbers, which have not been preserved in the article below:

^{1}suˑl (blood); ^{2}su^{ʔ}l (white salmon); ^{3}suːl (snow sled) ^{4}sul (cradle hook) (in S. Ket)
^{4}suːlɛ (in N.Ket)
^{4}suː^{h}l (in Yugh)

Although pre-20th century recordings of Yeniseian did not mention any melodic tonal qualities, Werner's research (Werner 1972) has demonstrated - essentially by using the same system of non-melodic correlates discussed above - the probable presence of at least the first three tones in Arin, Pumpokol, Assan and Kott. Werner has also argued that Common Yeniseian contained a system of two tonal contrasts - most likely an even tone vs. a rising tone - and that this binary system was later complicated by phonetic processes of syncope and apocope, which led to the inclusion of the non-melodic features described above (Werner 1974). - Edward J. Vajda, translator.]

There have been several previous attempts to reconstruct the Proto-Yeniseian (PE) sound system (Toporov 1977; Verner 1977; Starostin 1982). Of these, S.A. Starostin's undoubtedly deserves special attention. The reconstruction of the PE sound system proposed here as an alternative to Starostin's system is based entirely on internal Yeniseian evidence. It consists of only those phonological processes that can be reconstructed using comparative data from the known Yeniseian languages - Arin, Assan, Ket, Kott, Pumpokol and Yugh - and does not make use of any possible external (extra-Yeniseian) evidence. This reconstruction is in no way intended to contradict the one proposed by S.A. Starostin. It does not claim to be absolutely correct and should be regarded simply as one of a number of possible approaches to reconstructing PE phonology.

The lexical materials on Yeniseian languages gathered in the 18th century are not voluminous, but are sufficient to demonstrate reliable PE etymologies for a few hundred words. Supplemented by additional Ket, Yugh and Kott material from the 19th and 20th centuries, they permit the reconstruction of a significant portion of the PE phonology and vocabulary.

The results of phonological research on the Yeniseian languages over the past few decades suggest certain aspects of the lexical materials from the 18th and 19th centuries should be reinterpreted, which in turn allows for a new understanding of the PE sound system. Modern recordings and analyses of Ket and Yugh phonology permit us to decipher the transcription systems used by Castrén (1858) and other pre-20th century scholars - not only for Ket and Yugh, but for the remaining Yeniseian languages as well.

The Proto-Yeniseian consonant system

Comparing Ket and Yugh data recorded using modern methods of phonetic analysis with pre-20th century recordings of Ket and Yugh (as well as of the long extinct Arin, Pumpokol, Assan and Kott), permits us to reconstruct five places of articulation for PE plosives: labial, dental, palatal, velar, uvular. Each of these series also contained an opposition of aspirated vs. unaspirated (though this is less certain in the case of the velars and especially the uvulars). The unaspirated plosives may have been further subdivided into an opposition involving voiced vs. voiceless (although, once again, evidence for this is weakest in the case of velars and uvulars). The dental (or palato-alveolar) series also contained the fricative *s.

In addition to the consonants mentioned above, PE also seems to have contained seven sonorants: *m, *n, *n^{j}, *ŋ, *l, *ɬ/r, *j. As a rule, sonorants did not occur in word-initial position. It is also possible that a laryngeal (pharyngeal) sound alternated with the velars or uvulars in certain phonetic environments. In word- or syllable-final position, oppositions in plosives involving voice and aspiration were neutralized.

The reconstruction proposed above is summarized in the following table:

Proto-Yeniseian consonants

	labial	dental	palatal	velar	uvular	laryngeal
aspirated plosives	*p^{h}	*t^{h}	*t^{jh}	*k^{h}	*q^{h}	
unaspirated plosives	*p/b	*t/d	*t^{j}/d^{j}	*k/g	*q/ɢ	*ʔ
fricatives		*s				
sonorants	*m	*n	*n^{j}, *j *ɬ/*r	*ŋ		

The most controversial aspects of this proposal are the following: a) the presence of palatal phonemes; b) the presence of a phonemic opposition involving aspiration in plosives; c) the presence of a phonemic oppositive involving voicing in unaspirated plosives; d) the presence of a fricative phoneme *s; e) the presence of a glottalic phoneme *ʔ.

Excluding a series of palatalized consonants from the proposed PE reconstruction, however, would render it difficult to explain a number of sound correspondences clearly attested among the known Yeniseian languages:

Kott: š-, -č-, -š		Yugh: č-, d^{j}-, -t^{j}	Ket: t-, -d- (>r), -t
Kott: š-, -š-, -t;		Yugh: s	Ket: s ~ s^{j}
Kott: č-, -j-/-Ø-, -j/-Ø		Yugh: -d^{j}-, d^{j}-, -t^{j}	Ket: d-, -d- (>r), -t
Kott: š	Pump.: t	Yugh: s	Ket: s ~ s^{j}
Kott: d^{j}	Pump.: d	Yugh: Ø	Ket: Ø
Pump.: k	Arin, Assan, Kott: t		Yugh, Ket: d, t

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If one presupposes the existence of a palatal series in PE, and a subsequent convergence of the dental, palatal and at least some of the velar series, then much of the difficulty in explaining the above correspondences disappears.

One piece of evidence in support of a PE palatal series comes from Yugh, in which recent analyses using palatograms have uncovered a phonemic opposition involving palatalization (Werner 1979). In any case, there exists no alternative explanation for the origin of Yugh palatals. The proposed series of palatalized phonemes in Yugh is also supported by facts from areal typology. All neighboring languages in the region where Yugh was spoken - Samoyedic, Turkic, Tungus-Manchu, and Mongolian - also contain palatalized consonants. Even if the palatalized consonants in Yeniseian originated from language contact involving a South Siberian *Sprachbund*, it would still be plausible that these sounds developed from other PE sounds, perhaps an original retroflex series or a lateral fricative.

Palatalized consonants were found not only in Yugh, but also in the other extinct Yeniseian languages - Kott, Assan, Arin, and Pumpokol - all of which contained č^{j}, d^{j}, t^{j}, n^{j}. In Arin, as well as to some degree the other extinct Yeniseian languages, palatalization also affected the labials, velars and even the uvulars. But this seems to have been a secondary phenomenon, like the allophonic distribution of palatalized sounds in modern Ket dialects (Denning 1971), and almost certainly lacked any phonological relevance for these languages (Toporov 1968: 284-285).

Among the palatals we have not posited *l^{j}, since data from modern as well as extinct Yeniseian languages provides no real evidence for positing such a phoneme either synchronically or diachronically. However, this leaves open the possibility of a PE voiceless lateral *ɬ, since the status of alternations involving /l/ and /r/ remains unknown. The hypothesis of a mixed sound *lr in PE has not been proven. In our view, instance of alternations of /l/ and /r/, such as Yugh /ur/ water, vs. /ul/ wet; and /čel/ mammoth, vs. /sε^{h}ːr/ reindeer, most likely provide evidence of an original opposition in point of articulation involving /l/, /r < l/, and /ɬ/.

Regarding aspirated vs. unaspirated PE plosives, evidence for the labial and dental series is strongest, since this opposition has been attested for several Yeniseian languages in materials from the 18th and 19th centuries. Castrén's 19th century Kott data provide the best evidence: /t^{h}apui/ staff, /t^{h}ik/ snow, /t^{h}it/ a type of fish; /fa‿p^{h}a/ chest, /fi‿p^{h}i/ bird cherry. However, reconstructing aspirates in the palatal, velar, and uvular series is more difficult, since the known Yeniseian languages seem to lack such consonants. We have included them in our proposed PE sound system only because of the following attested sound correspondences:

velars	
1) k - k	Kott /kat/; Yugh, Ket /kʌ$^{?}$t/ children
	Kott, Assan /kej/; Yugh, Ket /kε$^{?}$j/ wing
2) k - h	Arin, Ket, Yugh /kulεp/; Kott /hulup/ mink
	Arin /kus~qus/; Assan, Kott /huš/; Yugh /ku$^{?}$s/ horse
uvulars	
1) q -q/x	Arin /qala ~ qaga/; Pump. /xejlaŋ/; Yugh /xak/; Ket /qaˑk/;
	Kott /qeːga ~ xeːga/ five
2) q - h	Arin /qusej~ khuzej~kuisa/; Assan, Kott /huča/; Pump. /xuta/;
	Yugh /χus/; Ket /qus^{j}/ one

Certain cases of uvular q/χ corresponding to velar k/x suggest a shift from *k^{h} > *q^{h}. If this possibility is accepted, then the following picture of the development of Yeniseian velars and uvulars emerges:

Arin /qusej ~ k^{h}uzej/; Kott /huča/; Pump. /xuta/; Yugh /χus/
> q^{h}/q > q/χ Ket /qus^{j}/ one

*kʰ > > k	Arin /kut/; Pump. /koat/; Yugh /χɔˀt/; Ket /kɔˀt/ road
> qʰ > h	Arin /kʲit ~ qit/; Assan /hit/; Kott /hit~het/; Pump. /kit/; Yugh, Ket /kɛˀt/ person
*k	Kott /keːti/; Yugh /kəˑt/; Ket /kəˑtɛ/ winter; Pump. /kučidin/ cold
> k	Arin, Assan, Kott /kerep/ boat
*g	
*qʰ > h	Arin /qoj/; Assan /hii~huj/ Kott /xii/; Pump. /kaj/ Yugh /χɨˀtʲ/ Ket /qɨˀt/ bow (weapon)
*q	
> q > q/χ	Arin /qut~kuːt/; Pump. /xotu/; Yugh /χɨˑt/; Ket /qɨˑt/ wolf
*ɢ	

This solution is not contradicted by data from the attested Yeniseian languages, but it leaves unexplained the reason for the loss of word-initial k, when this sound remained in Arin: /kina/ two; /kul/ water; /kur / wet; /kus/ birch, etc. Considering the fact that this initial /k/ corresponds to /h/ in Pumpokol and sometimes in Arin, it is possible that it originated from *qʰ (given the general change of *qʰ to h: Arin /qott~qot/ Assan, Kott /hat/ Koibal /ɔːt/ fire). However, this does not explain the disappearance of word-initian /k/, which leaves open the possibility of a PE laryngeal or pharyngeal in this position (Toporov 1967: 313).

Reconstructiong aspirated palatal *tʲʰ and unaspirated *tʲ is plausable, given the presence of palatal /čʲ, tʲ, dʲ/ in Yugh, Kott and other Yeniseian languages, where these sounds coincide exactly with dental /t, d/.

As already noted, the original PE velar and uvular consonants were divided into voiced and voiceless pairs which coalesced as voiceless /q/ or /k/ in all the Yeniseian languages (voiced word-initial /g/ was retained only in Yugh /gɔˀt/ buttocks). Conversely, it was the unaspirated labials, dentals and palatals that coalesced into /t/ or /d/ in Ket, Yugh, and often in Pumpokol. Some of the extinct Yeniseian languages also exhibit instances where original voiced labial and dental plosives retained their voicing. This provides evidence for a phonemic opposition in PE involving at least the unaspirated *p/b, *t /d, and *tʲ/dʲ. Examples: Kott /baːt/; Yugh, Ket /baˀt/ truth; Kott /bili/ where; Kott /bilčaŋ/, Yugh /birɨˑr/, Ket /bilʲilʲ/ from where; Kott /dʲal/, Yugh /dɨl/, Ket /dɨˑl/ child. This solution is supported by the fact that foreign borrowings into the extinct Yeniseian languages easily preserve the original voiced /b/, /dʲ/ or /d/ of the source language: Kott /da/ yes (from Russian *da*); /bolat/ steel (from Turkic); /butto/ as if (from Russian *budto*), etc.

In connection with the question of whether PE contained an opposition of voiced and voiceless plosives, Kott word-initial /dʲ/ can be viewed as a later innovation brought on through contact with Siberian Turkic languages. For the sake of argument, let us accept the following as cognates: Kott /dʲan/ vs. Yugh /lon/ and Ket /loˑn/ lips; Kott /dʲix/ (plural /dʲekŋ/ wooded hill, vs. Yugh /lɨˀtʲ/ wooded hill (pl. /lɨkŋ/) and Ket /lʲɨˀt/ (pl. /lɨkŋ/), wooded plateau; Kott /dʲili/ speak, vs. Yugh /laʰːl/, Northern Ket /laʰːli/, and Southern Ket /lʲalʲ/ blab; Kott /dʲafol/ board, vs. Yugh /lamɨr/ and Ket /lʲamɔlʲ/ door of a house. Otherwise, one would need to posit some sort of lateral fricative in PE to account for the alternation /dʲ ~ l/. Perhaps just such a solution might explain instances where /t/ alternates with /r/ or /l/, as in Yugh /saˀr/, Ket /saˀlʲ/, Kott /sat/, Pump. /saːt/ crucian (a type of fish), as well as lexical doublets showing free variation of /lʲ/ and /tʲ/, such as Arin /tʲaːgut ~ lʲhjagut ~ lʲhiagut/ thirsty; Arin /lʲgembirʲaŋ ~ tʲeːmbirʲaŋ ~ tʲeːmbirgaŋ/; Kott /tʲiːmbulaŋ ~ lʲgiembulaŋ/ root; Arin /lʲulʲap ~ tʲulʲap/ vs. Pump. /lut/ rope; Arin /lʲulap/ vessel (perhaps from *dʲulap < /dʲul/ child + /qap/ boat - analogous to Ket /dɨlti/ canoe < /dɨˑl/ child).

A comparison of all available data suggests a tripartite opposition in the labial series involving contrasts of aspirated vs. unaspirated and voiceless vs. voiced unaspirated:

*p^h -> p^h, p, f, h	Arin /p^{j}ugaj/; Assan /pugaj/; Kott /fugaj~p^{h}ukaj/; Yugh /fuːt < *fugat/; Ket /huːt < *hugat/ tail. Arin /phin^{j}aŋ~finn^{j}aŋ/; Pump. /pinniŋ/; Yugh /fʌniŋ/ ash; Ket /hʌniŋ/ sand; Kott /fena~p^{h}enaŋ/ ash.
*p/b -> p, b	Arin /pis/; Assan /didžiga~pičiga/; Kott /pičiga/; Pump. /bičidin/; Yugh /biˑs/; Ket /biˑs/ evening. Arin /peŋ~pieŋ/; Assan, Kott /paŋ/; Yugh, Ket /baŋ/ earth. Arin /bon/; Assan /bon~mon/; Yugh, Ket /bən^j/ no; Yugh /bən^{j}sɛ/; Kott /monča/ none.

The dental plosive series appears most likely to be defective (Toporov 1977: 331), though a similar tripartite reconstruction is conceivable, given the overall symmetry of consonant systems. A less reliable basis for reconstructing such a system would be typological considerations. For example, V.I. Tsintsius has reconstructed five series of plosives for Common Altaic - labials, dentals, palatals, velars and uvulars - each of which, except the uvulars, exhibits a trinary contrast (Tsintsius 1972: 87-89).

But reconstructing PE dental plosives is also complicated by the problem of fricative *s. Positing *s for PE is contradicted by evidence from Pumpokol. In Pumpokol, the fricative /s/ is found in initial position only in the following words: /saːt/ crucian (type of fish); /salat/ reindeer; /sogo/ eat; /sel^{j}pala/ morning; /situdi/ forty. Only the first two of these words have a reliable Common Yeniseian etymology. In non-initial position Pumpokol /s/ appears in the following words: /utamsa/ hundred; /basi/ no; /ilset/ husband; /ilsem/ wife; /xamossa~hamossa/ (a morpheme in certain numerals); /si/ (a predicative suffix, e.g.: /tulsi/, red; /komulsi/, green; /tajs/, hat; /tus/, salt).

Treating the Pumpokol data as representative of the earliest Yeniseian system yields a consonantal system resembling Proto-Dravidian - that is, a system lacking *s but containing either an affricate *ts or *č, or some special plosive, since the correspondences of Yeniseian *s with Pumpokol obstruents are heterogenous:

<-> Pum. /s/
Yeniseian /s, š/ <-> Pump. /ts/
<-> Pump. /č/
<-> Pump. /t/

Such data obviously support the idea that /s/ in the attested Yeniseian languages derives from more than one source, but almost no traces of this process seem to have been preserved. Ket and Yugh do exhibit an alternation between /s/ ~ /s^j/ and /s/ ~ /š/. For example, /s/ appears in Yugh /sa^{ʔ}χ/, Ket /sa^{ʔ}q/ squirrel; Yugh /sagabet/; Yugh /sa^{h}ːr/ and Ket /saːl/ spend the night; Ket /sɔːm/ wooden, blunt-tipped arrow; and so forth. But such alternations appear to be random and do not provide evidence for positing multiple origins for Yeniseian /s, š/. Kott likewise seems to have two separate sibilants, /č/ and /š/, in non-initial position: Kott /uːča/ birch (cf. Yugh /u^{h}ːs/, Northern Ket /uːse/, Southern Ket /us/ birch); Kott /uša/ in the distance; /eːš/ God; /ɛčaŋ/ gods (cf. Ket /eˑs^j/ God; /ɛs^{j}aŋ/ gods); Kott /ačaŋ/ obtain, catch; /ašam/ bad; /monča/ none; /anše/ my; etc. But here, once again, there is no strict correspondence.

On the other hand, it is not impossible that the Pumpokol correspondences to Yeniseian /s, š/ are conditioned by some substrate influence - most likely the neighboring Samoyedic languages, which lack /s/ (see Kostiakov 1976: 11-12). In such a case the Pumpokol data would be irrelevant to the question of PE *s.

Leaving aside the substrate interpretation of the Pumpokol data, we favor the presence of three apical spirants of distinct origins in the attested Yeniseian languages. One derives from Common Yeniseian *s/ts, another results from the spirantization of PE *t^{jh}, and the third from the spirantization of PE *t^h when palatalized (with spirantization possibly preceding palatalization). In Pumpokol all three of these spirants yielded different reflexes: *s/ts yielded /s/, *t^{jh} yielded /ts/, and *t^{h} yielded /t/. In word- or syllable-final position (where contrasts in plosives involving voicing and aspiration are neutralized), the reflex /t/ was also produced in certain Arin, Assan and Kott words: Arin /sat/, Kott /šet/ river; Kott /šet/, Arin /tčit~čit/, Assan /šit/ larch tree; Kott /šeːt/ reindeer suede (cf. also Kott /toteš/ silver fir, /totetn/ silver firs; and /areš/, pl. /aretn/ rye). It is interesting that Pumpokol /t/ in such instances usually combines with a back vowel (a, o, u, ɨ), while Pumpokol /ts/ or /č/ combines with a front vowel (i, e) - a fact that supports the origin of these sounds due to the palatalization and subsequent spirantization of a plosive. The possible palatalization of PE *t^{h} also finds support in Arin examples such as: /t^{j}uma/ black, /t^{j}e/ snow (cf. also Arin /tšit~čit, with Kott /šet/, Assan /šit/ larch tree; Kott /čogar/, Assan /čegar/, with Arin /šal/, Ket /s^{j}uːl/ sled, where the change t^{h} > č > š is in evidence).

The Pumpokol data likewise agree with the proposed system of Yeniseian apical obstruent reflexes, since a substrate factor in Pumpokol could have impeded the development of spirantization, which proceeded unhindered in the other Yeniseian languages.

Taking into account everything discussed above, the general picture of apical obstruent development that emerges for Yeniseian resembles the following:

*t^{h} -> t^{h}, t	Arin /t^{j}uma/, Assan /tuma/, Kott /t^{h}uma/, Pump. /tuma/ black; Arin /teː ~ t^{j}e/, Assan /tik/, Kott /t^{h}ik/, Ket, Yugh /tik/ snow; an exception is Kott /t^{h}ul/ vs. Yugh /sulgej/ left.
*t -> t, d *d -> t, d	Arin /t^{j}u/, Assan /tu/, Kott /tug~tu/, Pump. /dukar/, Yugh, Ket /du^{ʔ}/ smoke. Arin /tieŋ/, Assan /teš~tiš/, Kott /tiːš/ (pl. /tečagan~tieŋ), Pump. /dat/, Yugh /deˑs/, Ket /deˑs^{j}/ eye; Arin /t^{j}oŋa~t^{j}uŋa~tuːŋa/, Assan /toŋ^{j}a/, Kott /toŋa/, Pump. /toŋa/, Yugh, Ket /dɔ^{ʔ}ŋ/ three.
*t^{jh} -> č, t, s~š	Kott /šːiti/, Yugh /čiˑk/, Ket /tiˑge/ swan; Assan, Kott /šiš/, Yugh /čɨ^{ʔ}š/, Ket /tɨ^{ʔ}s^{j}/ stone; Kott /šeːki/, Yugh /ček~šeː/, Ket /teː ~ teːɣe/, kindling splinter; Pump. /tsɨč/, Yugh /kit^{j}/, Ket /kiˑt/ meat; Arin /ilčap/, Assan,Kott /alčip~alšip/, Pump./tsi/, Yugh /čip/, Ket /tiˑp/ dog.
*t^{h}->t^{j}~t^{h}->t,s,š	Arin /sava/, Assan, Kott /šaga/, Pump. /tak/, Yugh /sa^{ʔ}χ/, Ket /sa^{ʔ}q/ squirrel; Arin /sat/, Kott /set/, Pump. /*tet/, Yugh, Ket /seˑs/ river; Pump. /tuk/, Kott /šuka/, Assan /šuxa~šuga/, Yugh /sugej/, Ket /s^{j}uɣa/, back; Pump. /kut/, Arin /kus/, Assan, Kott /huš/, Yugh /ku^{ʔ}s/ horse; Pump. /uta/, Arin /kus/, Assan, Kott /uča/, Yugh /u^{h}ːs/, N. Ket /uːse/, S. Ket /us/ birch tree.
*t^{j} -> č, j, t	Arin /qoj/, Assan /hii~hui/, Kott /hiː/ (<*hij), Pump. /kaj/, Yugh /χɨ^{ʔ}t^{j}/, Ket /qɨ^{ʔ}t^{j}/ bow (weapon); Kott /čeaŋ/, Yugh /d^{j}ɛ^{ʔ}ŋ/, Ket /dɛ^{ʔ}ŋ/ people; Arin /quj/, Assan /huja/, Kott /huja/, Pump. /kod^{j}u/, N.Ket /quːdɛ/, Yugh /χu^{h}ːt^{j}/ perch; Assan, Kott /ija/, Pump. /hiju/, Central Ket (Baklanikha) /ɛːdɛ/, Yugh /ɛ^{h}ːt^{j}/ sable; Kott /iːji/, Central Ket (Baklanikha) /ɨːdɛ/, Yugh /ɨ^{h}ːt^{j}/ spring; Kott /haj/, Yugh /χɔ^{ʔ}t/, Ket /qɔ^{ʔ}t/, cry; Kott /či/, Yugh /d^{j}i^{ʔ}/, Ket /di^{ʔ}/ base of a tree.

*s/ts -> s, š	Pump. /saːt/, Yugh /saˀr/, Ket /sʲaˀlʲ/, Kott /šat/ crucian;
	Kott /kiːr/, Pump. /salat/, Yugh /seʰːr/, N.Ket /sɛːli/, S.Ket /sʲɛlʲ/ reindeer;
> dʲ, t~tʲ	Kott /šeli/ wild game; Kott /dʲan/, Yugh /len/, Ket /lʲeˑnʲ/ lip;
*ɫ	Kott /dʲili/ speak; Yugh /laʰːl/, N.Ket /laʰːli/, S.Ket /lʲalʲ/ blab.
> r, l, lʲ	Kott /šat/, Pump. /saːt/, Yugh /saˀr/, Ket /sʲaˀlʲ/ crucian;
	Kott /kiːr/, Yugh /kɨt/, Ket /kɨˑt/ fat;
	Kott /šal/, Ket /sʲaˀlʲ/, Yugh /saˀr/ knife edge;
	Arin /kul/, Assan, Kott /ul/, Ket /uˑlʲ/, Yugh /ur/, Pumpl /ul/ water; but cf.
	Arin /kur/, Assan, Kott /ura/, Pump. /urga/, Yugh /ul/, Ket /ulʲ/ wet.

The examples listed above to illustrate the reflexes of *t and *d cannot, of course, substantiate the existence of a voiced/voiceless opposition in PE, since it is entirely possible that one and the same unaspirated plosive could have yielded /t/ in some daughter languages and /d/ in others. The single Kott example where /d/ might be derived from PE *d is insufficient evidence: /fiːdam~pʰiːdam~fiːtam/ right now, just. However, certain Pumpokol, Yugh and Ket words contain an intervocalic /t/ in place of /d/, which might be derived from PE *t rather than *tʰ. This interpretation finds support from corresponding cognates in Kott. Generally, intervocalic /tʰ/ is not uncommon in Kott, e.g.: /tʰateŋ atʰa/ transport to the other riverbank; /ača atʰeŋ/ I get scared; /itʰakŋ/ I jump; /atʰol/ door; /atʰijaŋ/ I beat. Note also the absence of /tʰ/ in forms such as: /eːti/ alive; /iti/ tooth; /uːti/ full. These words could likewise attest to the presence of PE *t, since, as mentioned above, the corresponding Pumpokol, Yugh and Ket cognates contain /t/. Interestingly, Yeniseian materials gathered in the 18th century occasionally reveal lexical doublets with alternations of /t/ and /d/ in this environment: Arin /atie/, Assan /etitu~editu/, Kott /editu/, Ket /eːti/, Pump. /atodu/, Yugh /ɛʰːt/, N.Ket /ɛːti/, S.Ket /ɛt/; Kott /iti/, N.Ket /iːti/, Yugh /iʰːt/ (pl. /iteŋ/) tooth; Kott /uːti/, Yugh /uˑt/ (pl. /utɨŋ/) full; Ket /utal/ whole; Assan /juda~dʲuta/, Kott /dʲuta/, Pump. /ute/, N.Ket /uːtɛ/ mouse. The opposition between /t/ and /d/ in intervocalic position in these Pumpokol, Ket and Yugh words might reflect an original opposition in PE between *t and *d.

Determining the possible reflexes of PE *tʲ and *dʲ in the attested Yeniseian languages poses a somewhat more complicated problem. The Yugh and Ket data in this regard provide no evidence, but one feature of Kott is worthy of attention. The word-initial palatalized /čʲ/ and /dʲ/ of Yugh correspond to Kott /š/ and /č/, respectively; but in intervocalic position, Kott shows an opposition between /š/, /č/ and /j/, of which /j/ corresponds exclusively to Yugh /dʲ/. From this point of view the following examples, with contain a correlation between Yugh-Ket /dʲ/ and Kott /j/ can be viewed as the result of a change in the dental series involving PE *dʲ: Arin, Assan and Kott /aj/, Pump. /ad/, Yugh and Ket /at/ I, me; Kott /ulaj/, Yugh and Ket /ulat/ rib; Kott /hej/, Yugh /χaˀt/, Ket /qaˀt/ fur coat; Arin /aiŋ/, Assan /ajuŋ/, Kott /ajoŋ/, Pump. /adɨŋ/, Yugh and Ket /ətn/ we, us. These facts support the hypothesis that PE contained an opposition between *tʲ and *dʲ .

Let us conclude this survey of the PE consonant system with one final feature exhibited by sound correspondences between attested Yeniseian languages. This involves the following instances, where Pumpokol velars correlate with anterior obstruents in the other Yeniseian languages:

I.

Pump. /ot/ vs. Ket /oˑk/ and Yugh /ok/ sterlet (a type of fish);
Pump. /buč/ vs. Ket and Yugh /bɔˀk/ fire;
Pump. /toːm/ vs. Kott /kem/ river;
Pump. /teč/ vs. Arin /saj/, Assan, Kott /šig/, Ket, Yugh /si/ night;
Pump. /tsič/ vs. Ket /kiˑt/, Yugh /kitʲ/ meat;
Pump. /tsitaNe/ vs. Yugh /kisɔŋ/ evening.

II.

Pump. /xam/ vs. Arin /sam/, Assan, Kott /šame/, Ket /teˑm/, Yugh /čem/ goose;
Pump. /kejn/ vs. Arin, Assan, Kott /ton/ Ket, Yugh /dɔˀn/ knife;
Pump. /kediŋ/ root vs. N.Ket /tidiŋ/, Yugh /tidʲiŋ/ roots;
Pump. /kutte/ vs. Arin /poš/, Assan, Kott /puš/, Ket, Yugh /bɨˀs/ penis.

As mentioned above, these correspondences can be explained if one accepts in such cases the possibility of historical convergence of the various series of consonants. Typological considerations obviously suggest that the velars most likely were fronted due to strong palatalization (a possibility supported by the Arin data), becoming palatals and in some cases later changing to dentals. There is no evidence that Yeniseian could have undergone the opposite process, typified by the gutturalization found in some German dialects, e.g.: /stiːt/ -> /stiːk/ time.

Proto-Yeniseian vowels

When reconstructing the PE vowel system it is possible to begin, with little risk of error, by positing at least the minimal three cardinal vowels - /i,a,u/ - all of which are present in various grammatical morphemes of pronominal origin. The question of whether PE contained *e or *o is not of primary importance, especially if the difference between PE *i/ *ɛ, and *u/*ɔ was not phonologically relevant. It is possible to posit, on the one hand, an early PE period in which *i/ *e, and *u/*o functioned as allophones, and a later PE period in which there were five vowel phonemes:

i　　　　u
ɛ　　ɔ
a

It is very important to decide whether unrounded back vowels *ɨ and *ʌ can be reconstructed for PE. There is strong evidence that these vowels represent later developments in the Yeniseian daughter languages (Denning 1973: 24-26), but counter-evidence also exists. The lack of any strict system of sound correspondences between Ket and Yugh /ʌ/ and /ə/, on the one hand, and the remaining Yeniseian languages, on the other, might indicate that these sounds are original rather than later innovations. What is more, the mid-vowels /ʌ/ and /ə/ are found in many core vocabulary words of Ket and Yugh: pronouns, names of body parts, etc., and also in verb affixes of pronominal origin. In addition, occasional reflexes of these sounds appear in the records of the extinct Yeniseian languages as /ü/, /ö/, or /ɨ/.

In this way, if one accepts the existence of unrounded high and mid central (or central-back) vowels in PE, the following vocalic system for late PE emerges:

i　　ɨ　　u
ɛ　ʌ　ɔ
a

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Some Yeniseian Isoglosses

John D. Bengtson

Since beginning my research on the Dene-Caucasian (Sino-Caucasian) hypothesis about a decade ago, I have been fascinated by the mysterious Yeniseian languages, surviving today only as Ket. (See Edward Vajda's excellent survey in this issue.) Up until recently, the Kets were pigeonholed as one of the "Paleo-Siberian" (or "Paleo-Asiatic") peoples, a designation with a vague geographic (and cultural) significance, but only a "dustbin" category in linguistic terms. Sergei A. Starostin's (1982, 1984, 1991) and Sergei L. Nikolayev's (1991) pathbreaking articles on the Sino-Caucasian hypothesis, and my own research on the subject, have convinced me that Ket (and its extinct relatives) had originally nothing to do with the other so-called "Paleo-Siberian" languages (Yukaghir, Nivkh, Chukchi-Kamchatkan). Analysis of Ket (Yeniseian) vocabulary and morphology shows that its affinities lie rather with the Dene-Caucasian languages: Basque, (North) Caucasian, Burushaski, Sino-Tibetan, and Na-Dene.

It is difficult to tell whether Yeniseian is especially close to one of the other Dene-Caucasian families, or stands apart. Merritt Ruhlen (1998) has recently published an article in the *Proceedings of the National Academy of Sciences*, holding that "Na-Dene is more closely related to Yeniseian than to either [Sino-Tibetan and Caucasian]." The following is not an argument against that thesis, but is meant simply to point out some lexical items which Yeniseian shares with other Dene-Caucasian languages, namely Basque and Burushaski. For Yeniseian-Na-Dene isoglosses, see Ruhlen's article; and for Yeniseian-Sino-Tibetan and Yeniseian-Caucasian isoglosses, see Starostin (1982, 1984, 1991) and/or Starostin & Ruhlen (1994).

In most of the following cases, the lexical item in question is found only in Yeniseian and language *x, or* Yeniseian and language *x* share a common semantic shift, *and/or* a common suffix or other formative element. References are made to Starostin's Yeniseian dictionary (1995, "SSEJ," in Russian), and, where relevant, to Starostin & Ruhlen (1994, "PYen," in English). Starting with Basque:

Yeniseian-Basque:

1. Yeniseian: PYen **pis* '(bird's) tail' > Ket *h īś*, Yug *fis*, Kott *pis*, etc. (SSEJ 249):
Basque: (U) *buztan* 'tail'.

{Starostin (SSEJ 249) compares the Yeniseian words with PEC **bilʒ́V* 'beard'. Cf. also the isolated (in Caucasian) Tsakhur *bḭt* 'tail' < PDC **buc(')i* ?.}

2. Yeniseian: PYen **kəqənt-* 'neck, collar' > Ket *kəqtɨ*, 'neck, collar', Kott *agántan*, *agantán* 'collar', etc. (SSEJ 237, PYen 82):

Basque: *kokot ~ kokote* 'nape, neck'

{Burushaski has a somewhat similar word: *qoqó* 'goiter'. Starostin (SSEJ 237) makes other comparisons with Caucasian and Sino-Tibetan. It has been claimed that the Basque word is of Romance origin, related to Spanish *cogote*, Occitan *cogòt*, but these Romance words have no Latin antecedent, so the direction of borrowing is more likely the reverse, Basque > Romance.}

3. Yeniseian: PYen **tVpVlʸ- ~ *tVbVlʸ-* 'spleen' > Kott *tebolä*, Arin *tabre* (SSEJ 292):
Basque: (U) *sabel* 'stomach, belly'.

{Starostin (SSEJ 292) cites other cognates in Caucasian and Sino-Tibetan, but only Yeniseian and Basque have the triconsonantal form ending in a lateral < Proto-Dene-Caucasian (= PDC: approximately) **čabVl-*. The same initial correspondence is found in, e.g. PYen **toL-* 'fence' (Ket *telʸ*, etc. SSEJ 287) = Basque *sare* 'fence, enclosure' (< **sale*) = PEC **čȟiaɫē* 'fence, enclosure (NCED 343).}

4. Yeniseian: PYen **xur*$_1$ 'water', **xur* 'rain', **xura* 'wet' > Ket *ūlʸ* 'water', *ulʸe*` 'rain', *ulʸ-tu* 'wet', Yug *ur* 'water', *ures* 'rain', *ul* 'wet', etc. (SSEJ 297-298, PYen 84, 90):
Basque: (Z) *hur* ~ (U) *ur* 'water', (U) *euri* 'rain'.

{There are other scattered cognates, e.g.: Caucasian: Lezgi *hül* 'sea, liquid' vs. *wir* (~ dialectal *hür* ~ *ür*) 'lake, pond' (NCED 506, 537); Burushaski *hur* 'conduit for water, wooden trough'. Note the apparent *r* ~ *l* apophony in Yug and Lezgi. Basque "soft r," as in *hura* ~ *ura* the water', *euri* 'rain', sometimes historically comes from *-l-*, and/or is cognate with Caucasian **l*.}

5. Yeniseian: PYen **χɔpVr* 'foam' > Ket *qɔ:lʸ*, Kott *hāpar* ~ *hāpur* 'foam', etc. (SSEJ 304):
Basque: (B,G,U) *apar* 'foam' (< **hapar?* The word is found only in Spanish Basque dialects, where aspiration is lost).

{Starostin (SSEJ 304) cites Altaic **k'op'i* 'foam' as a possible loanword (one way or the other), but the Basque-Kott comparison is very precise, and suggests an ancient Dene-Caucasian origin.}

6.Yeniseian: PYen **beʔč* 'snow' > Ket *bɛʔt*, Pumpokol *beč* 'snow', etc. (SSEJ 208, PYen 243):
Basque: (B) *batz* 'wet snow' (also 'scum').

{PYen **beʔč* is properly 'falling snow(flakes)', vs. PYen **tiχ* 'snow (on the ground)'. Cf. also Na-Dene: Eyak *wehs* 'soft snow, tundra' (Ruhlen 1998).}

7. Yeniseian: PYen **täχVr* 'otter' > Ket *ta:lʸ*, Kott *thēgär* ~ *thēʔär* (SSEJ 283, PYen 84):
Basque: **u-dagera* 'otter' > (BN, Salaberry, Silvain Pouvreau) *udagara* ~ (B,L) *ugadera* ~ (Z)*ügadera* ~ (L) *uadera* ~ (B) *ubegara* ~ *uagara* (~ complete distortions such as (B) *ugabere*, contaminated with abere 'domestic animal, cattle').

{If Basque **u-dagera* is the original form, *u* could be either a fossilized class prefix or a form of *(h)ur* 'water'. Caucasian words such as Andi *darGʷa* 'weasel, marten' and Lak *t:arq'a* 'weasel, ermine' (NCED 399) are probably also related.}

8. Yeniseian: PYen **χas* 'badger' > Kott *hāš* 'badger' (SSEJ 299, PYen 72):
Basque (Z) *harzkṹ*~ *hazkṹ* 'badger', *hartz* 'bear' ~ (AN,BN,B,G) *azkon(ar)* 'badger' ~ (BN) *azkoin* ~ (L) *azkuin* ~ (R) *azkoĩ* 'badger', (U) *hartz* 'bear'.

{All probably related to Caucasian words such as: Dargi *χa̰rc'* 'marten, squirrel', Chechen, Ingush *χešt* 'otter' (NCED 1073); and cf. Na-Dene: Tlingit *χuuc'* 'grizzly bear', etc. The Basque word for badger is a compound of **Harc* 'bear' + **koñ* : see next item.}

9. Yeniseian: PYen **kūn*^{y} 'wolverine' > Ket *kūn*^{y}*e*, Pumpokol *kun*, etc. (SSEJ 242, PYen 91):

Basque: **koñ* (in the word for 'badger', see no. 8, above).

{Starostin (SSEJ 242) compares Caucasian words such as Ubykh *q*^{w}*ənə́* 'mouse, rat'.}

10. Yeniseian: PYen **c[ī]k* 'snake, fish' > Ket *tiγ* ~ *tix* 'snake', Yug *či:*^{h}*k* 'snake', Kott *tēg* ~ *tēx* 'fish', etc. (SSEJ 214, PYen 86)

Basque: (U) *suge* 'snake'.

{There is an apparent cognate, isolated in Na-Dene: Haida *siiga* 'snake'.}

11. Yeniseian: PYen **sur*^{y}- 'yellow' > Ket *sulemam*, Kott *šui*, Pumpokol *túl-si* (SSEJ 278, PYen 92):

Basque: (U) *zuri* ~ (Z) *xuri* [šuri ~ šui] 'white'.

{Starostin (SSEJ 278) cites several other proposed comparisons.}

12. Yeniseian: PYen **ʔa(j)t-* 'door' (SSEJ 179), **ʔajtol* 'door' (PYen 76) > Kott *athol*, Arin *ejtol*, Assan *atol*, etc. 'door':

Basque: (BN,L,Z) *athe* ~ (U) *ate* 'door', ~ (U,AN,B,BN,G) *atari* / *atal-* 'porch, vestibule' ~ (AN,BN,L) *athal* ~ *atal* 'door(way)'.

{Starostin (SSEJ 179) mentions Hungarian *ajtó* 'door' and the possibility of "Hunnish" influence on Hungarian (see Vajda's article in this issue). The comparison with a Caucasian word for 'door' (Dargi *unza*, etc.) seems less likely.}

Yeniseian-Burushaski

13. Yeniseian: PYen **ʔiɢ* 'name' > Ket *ī* (plural ɛʔŋ), Kott *ix* (plural *īkŋ* ~ *ekŋ* ~ *eäkŋ* 'names'), etc. (SSEJ 193, PYen 82):

Burushaski: (Yasin) *-yék* 'name', (plural *-yékiŋ* 'names') ~ (Hunza) *-ík* 'name', (plural *-íkiŋ* 'names').

{Note the similar plural forms (with ending *-(i)ŋ*). Ruhlen (1998) cites Na-Dene parallels (Tlingit *ʔix'* 'to call out, announce, invite' is especially good), but only Yeniseian and Burushaski have the noun corresponding to PDC **ʔiq(')* 'name'.}

14. Yeniseian: Ket *l*^{y}*aŋ* 'hand' (isolated in Yeniseian):

Burushaski: (Hunza) *-riŋ* ~ (Yasin) *-rén* 'hand'.

{Comparison by Toporov (1971: 114), who also pointed out morphological similarities in possessive prefixes, e.g.: Ket *ab-l*^{y}*aŋ* 'my hand' = Hunza *a-riŋ* 'my hand'; Ket *ug-l*^{y}*aŋ* 'thy hand' = Hunza *gu-riŋ* 'thy hand', etc. Ket *l*^{y}*aŋ* could come from PYen **r*^{y}*aŋ*: cf., e.g., Ket *l*^{y}*aʔt* 'beaver' < PYen *$r^{y}a^{ʔ}t$ (SSEJ 267)}

15.Yeniseian: PYen **p[u]jm-* 'neck' > Kott *fuimur* ~ *phuimur* (pl. *phuimuraŋ̣*), Arin *pemä* 'neck' (SSEJ 253, PYen 82):

Burushaski: (Yasin) *-phúiŋ* 'shoulder' (pl. *-phúiŋčiŋ* 'shoulders') ~ (Hunza) *-phóiŋ* 'shoulder'.

16. Yeniseian: PYen *hur^{y}- 'saliva' > Ket ul^{y}*əŋ̣*, Yug *urɨŋ* , Kott *hujuŋ̣* 'saliva, spittle' (SSEJ 231, PYen 85):

Burushaski: (Yasin) *horóγo* ~ (Hunza) *huróγo* 'sweat'.

17. Yeniseian: PYen **jeŋ̣* / **jɔŋ̣* 'egg, roe' > Ket *ēŋ̣* 'eggs', *ɔŋ̣-diś* 'roe (fish eggs)', Pumpokol *tan*^{y}*áŋ* 'egg', etc. (SSEJ 232, PYen 76):

Burushaski *ṭiŋ̣án* 'egg', pl. *ṭiŋ̣áyu* 'eggs' (retroflex *ṭ*).

{The phonological correspondence (j = t) is verified by, e.g., PYeniseian **jəpe* 'leaf' = Burushaski *tap* 'leaf' (PNC **ƛ'ăpi* 'leaf'). The retroflex *ṭ* in Burushaski appears to be conditioned by the following velar nasal (cf. no. 19, below).}

18.Yeniseian: PYen **duʔ(χ)-* 'smoke' > Ket *duʔ*, Pumpokol *dúkar*, etc. (SSEJ 224, PYen 86):

Burushaski (Yasin) *thux* ~ (Hunza) *tux* 'steam, mist' (Burushaski *x* is actually a uvular fricative = *χ*).

{Cf. scattered possible cognates: Tibetan *du-ba* 'smoke'; Na-Dene: Sarsi *-t'uʔ* 'to smoke', Navajo *-t'ooh* id. Caucasian comparisons suggested by Starostin (SSEJ 224) seem less promising.}

19. Yeniseian: PYen **tum-* 'black' > Ket *tum*, Kott *thum*, 'black', etc. (SSEJ 289):

Burushaski: (Hunza) *ṭumṭaŋ̣* 'dark, darkness' ~ (Yasin) *ṭuŋṭáŋ̣* 'pitch-dark'.

20. Yeniseian: PYen **KVlpV* 'spoon' > Kott *xalpen*, Arin *kɨlṕhan*, Pumpokol *hápi* 'spoon':

Burushaski: *khápun* 'spoon'.

{Comparison by Ruhlen (PYen 87). Starostin (SSEJ 243) notes also Altaic parallels: Mongolian *qalbaɢa*, Turkic *$kal^{y}uk$ 'spoon'. If Central Asian loanwords - which way? But only Yeniseian and Burushaski have final *-n*.}

INTERPRETATION

Elsewhere I have proposed that Basque, Caucasian, and Burushaski form a special subgroup ("Macro-Caucasian" or "Vasco-Caucasian") of the Dene-Caucasian macro-family. Do these lexical comparisons between Basque and Yeniseian, and between Burushaski and Yeniseian, contradict this hypothesis? I believe they do not, because the parallels listed above reflect archaic residue rather than common innovations. Basque, in its outlying geographic position, isolated from other Dene-Caucasian languages for many (probably ca. 5,000) years, has by chance preserved some words that were lost almost everywhere else. For example, Basque shares a few striking parallels with Na-Dene, at the opposite end of the Dene-Caucasian continuum, e.g.:

> Basque *odol* 'blood' = Na-Dene **deɬ* > Eyak *deɬ*, Navajo *dìɬ* 'blood', etc.;
> Basque *jan* 'to eat' = Na-Dene **yan* 'to eat' > Tlingit *yan*, Navajo *-yã́ , -yã́ã́ʔ* 'to eat', etc.;
> Basque *k(h)edar ~ keldar* 'soot' = Na-Dene: Haida *ɢayt* 'ashes', Tlingit *kɛ́l’t’* 'wood ashes'.

Burushaski, in a more central geographic position, has by chance preserved some of the same words as Yeniseian. Burushaski also shares a few isoglosses with Na-Dene, e.g.:

> Burushaski *hek ~ hik* 'full' = Na-Dene: Tlingit *hik* '(be) full';
> Burushaski *-γóyaŋ̣* 'hair (of women)' = Na-Dene **χaʔ* 'hair, fur' > Tlingit *χà-w* 'hair', Eyak *-χuʔ* 'fur', Navajo *-γààʔ* 'hair, wool', etc.;
> Burushaski *γaṣ* 'foam' = Na-Dene: Tututni *-γoš*, Chipewyan *-γʷòs* 'foam'.

The extensive morphological similarities between Burushaski and Yeniseian (see Toporov, 1971; and note items 13 and 14, above) can also be ascribed to archaic residue.

There are many examples of the sporadic retention of archaic residue in other language families. For one, an old Indo-European word for 'spring' (the season) is retained in Scandinavian (e.g., Swedish *vår (< *wēs-)* = Russian *vesná,* Indic *vasantá-*, etc.), but not in Gothic or other Germanic languages. At a deeper chronological level, a Nostratic word for 'tail' (Georgian *k’ud-*, Yaku *quturuq*, Orok *xudu*, Korean *korí*, etc.) is preserved, by chance, in only one branch of Indo-European (Latin *cauda ~ cōda* > Italian *coda*, French *queue* [*kø*] 'tail', etc.). Such is the "lottery" of lexical change. The Yeniseian-Basque and Yeniseian-Burushaski isoglosses are of this type.

ABBREVIATIONS:

AN	Alto Navarro (Basque dialect)
B	Bizkaia = Biscay (Basque dialect)
BN	Basse Navarre (Basque dialect)
G	Gipuzkoa (Basque dialect)
L	Lapurdi = Labourdin (Basque dialect)
NCED	Nikolayev & Starostin 1994
PDC	Proto-Dene-Caucasian
PEC	Proto-East Caucasian
PNC	Proto-(North) Caucasian
PYen	Proto-Yeniseian; also = Starostin & Ruhlen 1994
R	Roncalés (Basque dialect)

SSEJ	"Sravnitel'nyj slovar' enisejskix jazykov" = Starostin 1995
U	Unified (standard) Basque = Euskera Batua
Z	Zuberoa = Souletin (Basque dialect)

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The External Relations of Ainu: Problems and Prospects[1]

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The linguistic affiliations of Ainu (if any) are an enigma which may never be solved, despite already 70 years of investigations. The problem, in a nutshell, is that any such relations will be rather remote, yet the Ainu lexical data available to us are limited mostly to dialects that have been influenced heavily by Japanese and neighboring Siberian languages. Among the Ainu themselves there is a belief that they arrived from outer space, "On a hill in the Saru River valley, in fact, a monument marks the spot where the first Ainu are supposed to have come to earth" (Hilger 1967: 292). Assuming terrestrial origins, various linguistic comparisons have been made over the years, and it is the view taken in this paper that some of these may have merit. Gjerdman (1926), Rivet (1929) and Sternberg (1933) made some suggestive comparisons between Ainu and various Southeast Asian languages, and these have been the starting point for some of the most promising recent research.

A Southeast Asian affiliation is not the only hypothesis to have been put forward. Possible relations with Japanese and/or other Altaic languages, or with neighboring Siberian languages, have been discussed. The most important recent example is Patrie (1982), who sought to link Ainu with Altaic, but the number of comparisons was only modest, and too many involved culture-related items. The Patrie thesis was strongly rebutted by Street (1983) and Helimsky (1984).[2] While these proposals have the benefit of being geographically plausible, they have probably yielded no more than likely loan words and chance resemblances, though a Eurasian affiliation for Ainu is still favored by Greenberg and Ruhlen (1992, et passim).

It is interesting that there have been several comparisons between Ainu and Indo-European, such as by van Windekens (1962), Tailleur (1962) and Naert (1962). Although such studies were inconclusive, the notion that Ainu is Indo-European became so widespread that it seemed to have entered popular linguistic lore. I still encounter individuals who "recall that Ainu was found to be Indo-European."

An important preliminary step in determining genetic relationship is demonstrating that the languages in question share a body of similar morphemes which are unlikely to have been borrowed. It is therefore important that we know as much as possible about the histories of the languages under investigation. Until recently, most attempts to relate Ainu to other languages consisted of direct comparisons with modern Ainu words, usually drawn from Batchelor's (1905) dictionary. Unfortunately, Batchelor mixes various dialects without distinguishing them, and fails to identify many loan words, reducing its usefulness as a source. Fortunately, there has been some important progress lately, namely the publication of Vovin's (1993) Proto-Ainu reconstruction.[3]

Vovin compared his Proto-Ainu lexicon (derived from Hokkaidô, Kurile and Sakhalin dialects) to the Austroasiatic comparative lexicon in Shafer (1966), and proposed more than 50 matchings without implausible semantics or sound changes. This is complemented by Bengtson and Blažek (1997), which lists some 84 comparisons with Munda, Mon-Khmer, Miao-Yao, Thai and Austronesian. In each of these works there are some excellent matches in both form and meaning, sufficient that these proposals warrant further investigation. In this paper, I suggest a restricted method of comparison, so that we can make some objective measure of the evidence for relationship. In this method, we count only comparisons made according to the standard Swadesh 100-word list, and which share very close semantics. The Ainu vocabulary is taken only from Vovin's (1993) Proto-Ainu lexicon, and the Mon-Khmer lexica are taken from basic word lists and reconstructions which have already been checked for loans. Apparently Villemin (1983) used a similar method to compare Japanese, Korean and Ainu, but I have not seen it.[4]

The comparisons made on this basis are listed below (see Table). Of the 100 Swadesh-list items, 86 are found among the Proto-Ainu lexicon of Vovin. However, there is a number of synonyms, so that there are 110 Proto-Ainu words listed in total. Against these 110 items, 61 comparisons with a sample of Mon-Khmer languages are presented, which is a score of 56%, before we apply more rigorous criteria. Already this figure is significant, because both Vovin and Bengtson & Blažek (the latter particularly) present a similar number of comparisons, but on the basis of much looser search criteria. (In fact, many excellent comparisons of theirs are missing from this study, although most would be included on a Swadesh 200-word list.)

The next step is to apply another test to these data. As Starostin (1995) points out, S.Y. Yakhontov has prepared a list of the 35 most stable meanings,[5] and one can roughly quantify the number of matches one finds on the basis of the list with the likely degree of relationship. According to Starostin, languages related at the level of Indo-European have more than 15 out of 35 related items. "If the compared languages have from 5 to 15 related items within the 35-wordlist, it means we can suppose a still more distant relationship between them" (Starostin 1995: 226). He goes on to say that a score less than 5 does not indicate relationship.

On the basis of the comparisons presented below, there are some 20 proposed matches out of 35 (57%), and some of these involve very close formal resemblance. In fact, no comparisons were made for 5 of the items, because two are missing from the Proto-Ainu vocabulary, and three are absent from the 100-item list. This puts the score at 67% rather than 57%. The problem in the present case is that, in Ainu-Mon-Khmer, unlike Indo-European, we have no basis in historical phonology for claiming relatedness, and this reduces the value of the comparisons. However, of the 20 under immediate consideration, 6 are particularly outstanding: *blood, fire, hand, horn, louse* and *stone*. These show excellent formal matches, and are well distributed among the Mon-Khmer languages. If we examine all of the 61 comparisons below, we see that some of them are rather weak in their formal resemblances, whereas those restricted to the 35-word list are more consistently close in their correspondence. We can say that there are very good correspondences for approximately one-third of the 35-word list, as well as some dozens of other plausible comparisons, restricting ourselves to the list below, and the already published list that appears in Vovin (1993).

I suggest that these results are indicative of a genetic relationship. The largest list of such comparisons which I have seen is a manuscript of Bengtson & Blažek (1997), which has 84 comparisons. However, their list includes Tai and Austronesian data, which potentially constitute a pool of more than 1000 languages from which comparisons can be drawn, greatly increasing the possibility of chance resemblances. The present study is much more constrained, so it is fruitful to compare the results. The point is that, if the supposed relationship is only a phantom of less-constrained methodology, the body of "evidence" should contract, or even vanish, as more stringent procedures are applied. In fact, we find the opposite result, so it can be argued that we are now on safer ground in discussing the possibility of relationship.

The conclusion of this brief paper is that the evidence for a genetic relationship between Proto-Ainu and Mon-Khmer is real, and deserves further consideration. The strongest claim that I make at this stage is that we now have a body of evidence which is clearly consistent with the notion that there is a real relationship between Ainu and Mon-Khmer. Even with the incomplete basic lexicon of Proto-Ainu provided by Vovin, it is not difficult to suggest matches for more than half of the Mon-Khmer core vocabulary, and we still find good quality comparisons when we apply strict search criteria. If there is a relationship here, it is certainly older than that found in Indo-European. The Ainu are probably the descendants of the Jômon culture, which arrived (or arose) in Japan between 6000 and 10,000 B.C. (Vovin 1992: 155), so that a proposed common ancestor with Mon-Khmer must have existed on the Asian mainland before 6000 BP. This is more like the time depth of Altaic than Indo-European, which although very ancient, is certainly not beyond successful investigation.

Table of Ainu - Mon-Khmer Comparisons:

Semantic		Proto-Ainu[6]	MK	comparison[7]				
ashes	-	***uu(y)na**	Bah.	**ʔuñ** 'fire'	Kui	**ʔu:jh**' fire'	Sem.	**ʔo:s** 'fire'
belly	-	***tuy**	U	**tü**				
bird	-	***ti=**	Bah.	**cim**	Viet.	**chim**	Kha.	**sim**
bite	-	***kupa**	Bah.	**kap**	Kui	**kap**	Sem.	**kap**
blood	-	***kEm**	Bah.	**pha:m**	Khr.	**Jha:m**	Mon	**chim**
breast	-	*tOO(C)	Bah.	**toh**	Khr.	**taoh**	Sem.	**ntəh**
burn	-	***uguy**	Viet	**cháy**	Bru.	**ku:jʔ** 'scorched'		
claw/nail	-	***am**,*Ham	Mon	**saṇem**	Nyk.	**ŋhi:əm**		
come	-	***arki**	Khm.	**kà:y**				
come	-	*Epa[8]	Sem.	**bɛj**				
dog	-	***gita**	Bah.	**ko**	Khr.	**chəkɛ:**	Snt.	**seta**
drink	-	***kuu**	Khm.	**uak**	Ksn.	**ʔuk**		
dry	-	*sat	Khr.	sŋuət	Kui	sʔɑ:t		
ear	-	*kisAr	Chr.	to:r	Kui	kətɔ:r	Kha.	shkór
earth	-	*tOy	Bah.	**teh**	Mon	**ti**	Sem.	**te:**
eat	-	*EE	Wa	ʔiʔh				

eye	-	*sik (*gik/*hik)	Khr.	bkənɛ:k				
feather	-	*trap	Khr.	slap				
fire	-	*apE	Brao	pa:j	Tmp.	pae		
fish	-	*tiqEp	Khr.	tri:				
fly	-	*paar=aC=sE	Bah.	par	Kui	pa:r	Ksn.	pal
full	-	*sik	Riang	s'ak	Lam.	sa:k		
hair	-	*EtOp	Bah.	sɔ:p 'bodyhair'			Snt.	ʔup'
hand	-	*tE=k	Bah.	ti:	Viet.	tay	Sem.	təkŋ
head	-	*pa	Chr.	kəmbo:ʔ	Mmd.		bo:ʔ	
horn	-	*ki(=)raqu[9]	Bah.	ʔəke:	Didra	ki:	Bru	ki: L
I	-	*an	Bah.	ʔiñ	Sem.	ʔɛñ	Ksn.	ʔañ
I	-	*a	Mon	ʔay	Khm.	o	Wa	ʔɨʔ
I	-	*ku	PVM	*kwa				
knee	-	*kOkka	Kha.	khósi	Kui	kɔ:l L		
leaf	-	*hrA	Bah.	hla:	Mon	sla	Snt.	palha
louse	-	*ki	Bah.	si:	Khr.	caj	Kha.	ksi
man	-	*Okkay	Kui	ku:j L 'person'				
moon	-	*tiqu(=)p[10]	Mon.	gatu	Nyk.	ntu:ʔ		
mountain	-	*gur	Nyk.	kúr-pədúər				
mountain	-	*nupuri[11]	Snt.	buru	Kui.	bru: L	Bah.	bri:
mouth	-	*prAA	Bah.	ʔbər				
neck	-	*dE=kut	Nyk.	k'ɔ:ʔ-khút				
nose	-	*Etu	U	tì				
one	-	*si=nE=	Kha.	ši:	Sem.	nanəʔ		
person	-	*aynu	Bah.	bəŋaj	Ruc	ŋàj	Mon	ñah
red	-	*guurE[12]	Bah.	ʔbre:	Tmp.	kəhrəj	Stieng	pərhe:
road	-	*truu	Bah.	trɔ:ŋ	Nyk.	tr'ɨw		
root	-	*=rit	Bah.	riəh	Khm.	rias	Mon	ruih
sand	-	*Ota	PM	*həti̠[13]				
see	-	*nu=kar	Kui	sì:r				
skin	-	*dus[14]	Jeh	kədu:h 'bark'	Ruc		kəduh 'bark'	
skin	-	*kap[15]	Stieng	kup 'skin,bark'	Sem.		cko:p 'bark'	
sleep	-	*mO	Bah.	po: 'to dream'	Viet.		mó 'to dream'	
star	-	*nOOti=qu	Kui	ntɑ:r				
stone	-	*suma	Bah.	təmo:	Khr.	thəmo:	Kha.	máw
tail	-	*sAr	Kui	sɑ:l				
that	-	*tO=	Nyk.	téʔ				
thou	-	*E=	Bah.	ʔɛ:	Sem.	hɛ:ʔ		
tooth	-	*nii	PM	*gnis[16]				
tree	-	*tiku=	Mon	chu	Khr.	ǰheə	Wa	khauʔ
water	-	*hdak=ka	Bah.	ʔda:k	Mon.	da:k	Snt..	dak'
we	-	*ti=	Sem.	ǰi:ʔ	Ksn.	zi:	U	ʔè
white	-	*dE(=)tar	Bah.	ta:r	Khra.		tar=diʔ 'light'	
who?	-	*gu(n)na	Nyk.	ʔəñàh	Khr.	ʔanakna		
who?	-	*nEE[17]	Kui	nà:				

Notes:

1. This is a working paper produced for the purpose of generating comments, and has been circulating for the past three years. The present paper was first presented at a meeting of the Koreno-Japonic Circle of the University of Hawai'i at Manoa, in October 1996. I would like to thank those who attended for their useful comments and suggestions. In addition, I would like to offer special thanks to the following people: Alexander Vovin, Neile Kirk, John Bengtson, Václav Blažek and Wilfried Schuhmacher for providing me with data, references and endless encouragement; and particularly to Ilia Pejros [Peiros], who first introduced to me the notion that the history of Ainu may profitably be investigated, shared data, and showed remarkable patience with me as I pursued such research interests at the expense of other pressing projects. 2. Khelimskij (1984: 36) states: "Bolee togo, esli predpolozhit; chto Dzh. Pètri svoimi ètimologijami v osnovnom ischerpal vozmozhnosti ajnu-altajskogo sravnenija - a ego izobretatel'nost' v poiske sblizhenij pozvoljaet v èto poverit' - to pridetsja konstatirovat', chto ajnu *ne* rodstvenen altajskim jazykam, po krajnej mere na tom urovne, na kotorom im rodstvenny korejskij i japonskij jazyki." [Moreover, if it assumed that J. Patrie's own etymologies essentially exhaust the possibilities of Ainu-Altaic comparison - and his inventiveness in the quest for comparisons permits this assessment - one concludes that Ainu is *not* related to the Altaic languages, at least not at the same level as Korean and Japanese are related to Altaic.] (Brought to my attention by Václav Blažek.)

3. I refer readers to my review of Vovin (1993) which appeared in *Diachronica* 13(1): 179-186.

4. Related to me by Václav Blažek.

5. 'blood, bone, die, dog, ear, egg, eye, fire, fish, full, give, hand, horn, I, know, louse, moon, name, new, nose, one, salt, stone, sun, tail, this, thou, tongue, tooth, two, water, what, who, wind, year'

6. Note that Proto-Ainu pitch accents have not been transcribed here; [=] indicates a morpheme boundary.

7. The MK data are taken from various sources, and include comparisons that have been proposed by other scholars. These are not etymologies, but comparabilia which may or may not be related.

8. 'arrive'

9. Vovin compares this with Proto-Monic *draŋ, Proto-Mon *krɛaŋ.

10. 'sun/moon'

11. Vovin suggests borrowing from Old Japanese *nobor=i* 'to climb'. The semantics are a little stretched, but at the same time it is unlikely that a native Ainu root would have three syllables.

12. Vovin compares this with Bahnar *gur* 'ochre' and others.

13. Suggested by Vovin.

14. 'skin/fur'

15. 'skin/fur'

16. 'canine tooth'
17. 'who/what'

ABBREVIATIONS

Bah.	Bahnar
Chr.	Chrau
Kha.	Khasi
Khm.	Khmu
Khr.	Khmer
Khra.	Kharia
Ks.	Ksinmul
MK	Mon-Khmer
Mnd.	Munda
Nyk.	Nyakur
PM	Proto-Mon
PVM	Proto-Viet-Muong
Sem.	Semai
Snt.	Santali
Tmp.	Tampuon
Viet.	Vietnamese

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Some Morphological Parallels between Ainu and Austronesian

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Abstract: There have been some comparative studies done between Ainu and Japanese (cf. Murayama 1992,1993; Katayama 1993), between Ainu and Austronesian (cf. Murayama 1992,1993) and between Ainu and other languages and/or language families (cf. Vovin 1993). But all these studies were devoted only to lexical comparisons (which is understandable, because Ainu comparative linguistics is still in a primitive stage), never to any morphological comparisons. In this paper the author tries to give some evidence that there may be some morphological cognation between Ainu and Austronesian: the Ainu affixes **i* and **si*, and the Austronesian **i* and **si*.

I. All the functions of the Ainu affixes **i*

[1] Prefixes

Ainu has both nominal and verbal prefixes (and suffixes as well) i, but they seem to be collapsed into a caseless and personless demonstrative/deictic element *i. Thus, the following uses must have all been derived from this element. Before the period of Proto-Ainu (=PA), there may have been no categorial distinction of nominative and objective case [oblique cases are indicated by postpositions, so they are excluded], but then the distinction gradually became indicated by affixing the demonstrative/ deictic pronoun *i and eventually fixed as shown below, probably because of its necessity and economy as the language became developed.

Therefore, the following uses may be all representations of the original demonstrative/deictic pronoun *i.

[1.1] nominal prefixes

Before we consider the indefinite person objective prefix *i- in Proto-Ainu (=PA), we will look at all the prefixes i- for personal uses in Classical Ainu (=CA) and Modern Ainu (=MA).

	CA		MA	
	sg	pl	sg	pl
1p.obj.1)	i-	i-	--	i-(in.)
	un-2)	un-2)	en-	un-(ex.)3)
2p.obj.	e-	eci-	e-	eci-
	--	--	i-(hon.)4)	i-(hon.)4)
3p.obj.	--	--	--	--5)

1):although it is normally labeled with the two separate terms 'accusative/dative', these cases can better be conflated into 'objective(direct/indirect)', which indicates these seemingly different case terms are actually put together into the same category.
2):un- in objective is found only in sacred ballads (Kamui Yukar).
3):in the Sakhalin dialects, there is no distinction between the inclusive and exclusive forms and the form i- is employed for both categories and also for the 1st person singular.
4):in the Sakhalin dialects there is no honorific category.
5):in the Sakhalin dialects there is a special suffix -hci for the 3rd person plural, which is, however, optional.

	PA	
	sg	pl
1p.obj.	*en-	*un-
2p.obj.	*e-	*e-ti-
3p.obj.	--	--
ind.p.obj.	*i-	*i-

The reason that the PA 1st person objective prefix *i- was not set up is that en- and un- are used in addition to i-;although i- serves as the 1st person objective singular and plural in CA and MA, en- is also used for the MA 1st person objective singular and un- is also employed for the CA 1st person objective plural in Kamui Yukar (Sin'yôshû) and for the MA 1st person objective plural. Since we do not expect the prefix en- for the 1st person objective singular to have appeared suddenly in MA, it must have appeared in CA but it just did not happen to appear in any document. On the other hand, un- appeared in CA, this form must be most likely to have occurred as the 1st person objective plural in PA.

There is another piece of supporting evidence, explained below in detail, that the prefix i- is also used for the honorific 2nd person objective. Therefore, the *i- cannot be the original 1st person objective.

There is also a reason that the prefix i- needs to be categorized into the indefinite person objective:the related demonstrative/deictic pronoun i, when the object of a verb, denotes 'something, someone'. These two types of i(-) are in common, other than having the same morphological shape, in that they are the objective case. Hence, it would be best to describe this prefix as the indefinite person objective to cover all the functions of that prefix.

(a) objective use of the indefinite person pronoun

Consider the following examples [Kindaichi 1960:78-80]:

(1) i-kotcake-ta
1P.IND.OBJ-front-LOC
'in front of me/us;for the sake of me/us;
in place of me/us'
(2) i-osimake-ta
1P.IND.OBJ-back-LOC
'at the back of me/us'
(3) i-ka-ta
1P.IND.OBJ-top-LOC
'(on) top of me/us'
(4) i-oro-wa
1P.IND.OBJ-place-ABL
'from me/us'

The prefix i- in all the examples above shows the 1st person objective, with locational nominals such as kotcake 'front', osimake 'back', ka 'top' and oro 'place'.

As touched on above, i- is also employed for the 2nd person objective honorific prefix in MA. This i- was probably derived from the 1st person objective prefix i- in CA. This is because the prefixes e-[sg.] and eci-[pl.] appear as the 2nd person prefixes in both CA and MA, so that these two forms were the original 2nd person prefixes. The other 2nd person prefix i- in CA would then be a derived one rather than the original. That must have been derived internally from the 1st person prefix i- and semantically reanalyzed as the 2nd person, since the original meaning became restricted to the honorific use in the 2nd person, which is based on historical linguistic evidence that, when an element is used to fill a categorical gap such as the 2nd person honorific, its original meaning becomes restricted to that specific category. Our claim is also supported by indirect evidence that the very same kind of derivational process in person and speech level is easily found in various languages of the world. For instance, the Modern Japanese 1st person pronoun temae and boku can be used for the semantically restricted 2nd person pronoun.

(b) 'emphatic' possessive use of the 3rd person pronoun

In general there is no 3rd person prefix to indicate any case in either CA or MA. The same is also true for the 3rd person possessive. But, instead of the zero 3rd person possessive prefix, the 3rd person possessive can be marked by a prefix i-. It may be better to label it as the 3rd person 'emphatic' possessive prefix, since the 3rd person zero possessive marker itself already indicates the possessive form of the 3rd person. Consider the following examples [cf. Kindaichi & Chiri 1936:71]:

(1) i-yupi [= yupi; kor yup] 'his/her/(its) older brother'
(2) i-siki [= siki; kor sik] 'his/her/its eye(s)'
(3) i-teke [= teke; kor tek] 'his/her/its hand(s)'
(4) i-mataki [= mataki; kor matak] 'his/her/(its) younger sister'

Note that the nominals with the possessive forms [i.e. yupi, siki, etc.] are more commonplace than the ones with the conceptual forms. The 3rd person emphatic possessive prefix i- may have come, possibly through the objective case of the demonstrative/deictic pronominal becoming fixed, from the demonstrative pronoun *i 'that', whose meaning and use are extended to the 3rd person 'it, he, she' where there is no marker for the 3rd person emphatic possessive. This explanation may be supported by the fact that the same type of extension of meaning and use takes place very often in languages where there is a zero marker for the 3rd person pronoun and the extended affix fills the gap of the 3rd person pronoun. For instance, Modern Japanese uses the so- of sore, sono as the 3rd person pronoun which is derived from the demonstrative pronoun so- 'that'.

[1.2] verbal prefixes

(a) objective use of the indefinite person pronoun

Just as with the nominal prefixes, Ainu has the identical indefinite person objective prefix *i- in PA, which is attested as the prefixes i- for personal uses in CA and MA. Since the uses of these verbal prefixes are identical with those of the nominal prefixes, those nominal prefixes will not be repeated here (see under the nominal prefixes above).

(a-1) objective use of the 1st person pronoun

First, we will look at the following examples [Pon Huchi 1993:77-8; Kayano 1996:50,55].

(1) a-kor-sapo i-resu [Pon Huchi 1993:77]
a-kor-sapo i-resu
1P-have-older sister 1P.OBJ-raise
'my older sister raised me'

(2) pon menoko i-ko-he-puni [Pon Huchi 1993:78]
pon menoko i-ko-he-puni
young girl 1P.IND.OBJ-toward-face-raise
'a young girl looked up at me'

(3) ku i-kore yan [Pon Huchi 1993:78]
ku i-kore yan
bow 1P.IND.OBJ-give IMP
'please give me a bow'

(4) i-kepkepi-p [Kayano 1996:50]
i-kepkepi-p
1P.OBJ-bite-thing
'a useless person' (literally, 'a thing which bit me')

(5) i-sir-ko-otke [Kayano 1996:55]
i-sir-ko-otke
1P.OBJ-land-with-pierce
'I was pierced to death with my land together'

The prefix i- in all these examples clearly shows the 1st person singular direct objective (examples 1,4,5) and indirect objective (examples 2,3). This prefix i- is different from that in (a-2) below in that the former indicates only the 1st person, which points to a particular person who is an addresser, whereas the latter shows humans in general, which is derived from the 3rd person human prefix i-. Both types [a-1,a-2] may have been ultimately derived from the demonstrative/deictic pronoun *i.

The first three examples are cited from some old ballads (Yukar), so we may claim that the use of this prefix i- may be an old function. This is indirectly supported by the fact that this old prefix i- indicates both singular and plural and the functional distribution of this prefix became restricted to the 1st person plural inclusive only in MA, while the 1st person singular and plural exclusive came to be indicated respectively by the prefixes en- and un-.

What is more, in the Sakhalin dialects the 1st person singular and plural prefixes are i-/in- and the original prefix may probably be i- and the -n of the prefix in- is probably some kind of suffix, whose function is still not known to us.

(a-2) 'humans in general' use of the 1st person plural pronoun

Consider the following examples [Kindaichi 1960:126; Pon Huchi 1993:77]:

(1) i-ram-tuypa [Kindaichi 1960:126]
i-ram-tuypa
us/humanIND.OBJ-heart-cutPL
'we are astonished' > 'Oh my God!'

(2) i-ram-toy-ne-re [Kindaichi 1960:126]
i-ram-toy-ne-re
us/humanIND.OBJ-heart-fall-become-cause
'we are frightened'

(3) i-ram-sit-ne-re [Kindaichi 1960:126]
i-ram-sit-ne-re
us/humanIND.OBJ-heart-complicate-become-cause
'be troublesome' > 'shut up!'

(4) i-ram-ayay-se-re [Pon Huchi 1993:77]
i-ram-ayay-se-re
us/humanIND.OBJ-heart-cry-cause
'really cry' > 'how sad!/ poor thing!'

(5) i-yay-ray-ke-re [Pon Huchi 1993:77]
i-yai-ray-ke-re
us/humanIND.OBJ-self-thank-do-cause
'be very grateful' > 'thank you!'

The prefix i- in these examples was originally the indirect objective case of the 1st person plural, 'to us', and this use is extended to the meaning of 'human in general'. The prefix i-, together with the following nominal, then becomes the direct object of the following verb. Note that this prefix i- cannot be the possessive prefix i-, because the following nominals are not in the possessive forms.

These examples also are all idiomatic expressions in MA, so that this 1st person plural prefix i- must be a fossilized form, which implies that this prefix may have been once very productive to indicate the 1st person plural indirect objective and probably direct objective as well.

(b) nominative use of the 3rd person pronoun

First, consider the following examples:

(1) ipokas 'be ugly'< i-pokas 'it (=appearance) is inferior' [K. & C. 1936:71]
(2) iyoikir < i-o-ikir (it-attach-line)'a line filled with it(= treasure)' [K. & C. 1936:71]
(3) iomai 'vagina' < i-oma-i (it-enter-place) 'a hole it (= penis) enters' [Kayano 1996:79]

The prefix i- in all the examples may function as the 3rd person nominative case indicating 'it', but the 'it' has to be something known by both the speaker and the hearer in linguistic or physical contexts [Kindaichi & Chiri 1936:71; Kayano 1996:79]. In that sense, the i- can generally be labeled as the caseless demonstrative/deictic pronoun, depending on where it is located in a sentence [i.e. nominative or objective].

In example 1, the prefix i- is undoubtedly the nominative use of the 3rd person pronoun, since the predicate is the adjective pokas 'is inferior'.

In examples 2 and 3, the 3rd person pronoun i functioning as the nominative is found in the relative clause instead of the sentence, which modifies the following nominals ikir 'line' and i 'place' respectively.

The prefix i- in question in example 2 seems to hover between the nominative and the objective: it can be interpreted as the following two different cases of the demonstrative/deictic pronoun functioning as 'objective', depending on how one interprets the transitive verb o in the clause: (1) that indicated by the prefix i-, which the agent acts on, serves as the subject of the clause and the noun ikir indicates the place where that shown by the pronoun is located [close to intransitive use];(2)that indicated by the prefix i- serves purely as the direct objective and the noun signifies the place where that indicated by the pronoun is located[transitive use]. We do not have any clue to which of the two is correct in this example, but we prefer the former, since there is at least one example of the nominative use of the 3rd person prefix i- in CA and another in MA.

(c) objective use of the 3rd person prefix

(c-1) definite objective use of the 3rd person prefix

This prefix i- itself shows the definite objective case in that the verb takes a direct specific and definite object marked by the prefix i-, regardless of animacy or inanimacy [Kindaichi & Chiri 1936:72; Pon Huchi 1993:77].

(1) i-ri 'skin it (skin) off' > 'skinning'
(2) i-ku 'drink it (alcohol)' > 'drinking'
(3) i-ca 'cut them (ears of grain) off' > 'cutting off ears of grain'
(4) i-carpa 'offer it (a feast) for the repose of soul' > 'a service for ancestor'
(5) i-omante 'let it (a bear's soul) go to heaven' > 'a bear festival'
(6) i-oske 'net it (a net)' > 'netting'

The prefix i- here, denoting a particular object, changes the original transitive verb to the intransitive counterpart as well as the nominal counterpart. This prefix showing the 3rd person has two different functions: intransitivizing and nominalizing, but which of the two is functioning in a sentence depends on its syntactic location.

(c-2) less definite objective use of the 3rd person prefix

Just like (c-1), this prefix i-, indicating a definite object, though being less definite, is intransitivizing as well as nominalizing, but when compared with the verbs in (c-1), the prefix in (c-2) indicates general or generic objects rather than specific and definite objects [Kindaichi & Chiri 1936:71-2; Pon Huchi 1993:76-7].

(1) i-tak 'invite them(words)' > 'language, words'
(2) i-ki 'do it (tangible/intangible thing)' > 'deed(s)'

(3) i-mi 'put it (clothes) on' > 'clothes,dressing'
(4) i-pe 'to eat it (food)' > 'meal'
(5) i-nukar 'to see it (town)' > 'sightseeing'
(6) i-yoyra <i-oyra 'forget/leave it (thing)' > 'forgetfulness'

As mentioned above, this prefix i- can be treated as the general and generic object translated as 'a tangible or intangible thing' as opposed to 'it' in the intransitiv- izing verbs. Hence (c-1) and (c-2) are basically the same, but one is more plausible than the other, depending on the range of the meaning of the prefix i-.

(c-3) indefinite human objective use of the 3rd person prefix

In Colloquial Ainu we find some examples of the extended objective use of the 3rd person singular prefix i- to denote 'human'. Consider the following examples [Kayano 1996:43,44,76,77,83]:

(1) i-e-tapkar
i-e-tapkar
him-with-dance
'dance with him/her'

(2) i-wen-te
i-wen-te
him-bad-make
'make him/her bad'

(3) i-ahunke
i-ahunke
him-let in
'invite him/her'

(4) i-o-itak-usi
i-o-itak-usi
him-it-words-attach
'curse him/her'

(5) i-resu-totto
i-resu-totto
it/child-raise-mother
'a foster mother'

(6) i-wen-te-p
i-wen-te-p
him-bad-cause-person
'an evil person, a devil'

The prefix i- in these examples indicates a general and indefinite human, just like (a-2) above, rather than a specific and definite non-human, including an intangible object. Note that all these complex verbs in the examples above are intransitive verbs derived from the equivalent transitive verbs, and that all the examples above except example 1 which shows the indirect objective case, indicate the direct objective case.

This indefinite human(and non-human) objective use of the 3rd person prefix i- is originally not distinguished from the definite human(and non-human) objective use of the 3rd person prefix i-. But then the definiteness becomes lost in some cases where no definite person or object is needed to clarify the situation. Then the definite one becomes unmarked, while the indefinite one becomes marked.

[2] Suffixes

[2.1] nominal suffixes

(a) possessive use of the 3rd person singular suffix

There are a limited number of nominals that take the possessive form with the suffix -i/-hi with variants, -e/-he,-a/-ha,-u/-hu,-o/-ho. For example:

(1) ona 'father' > on > ona-a > ona(ha) 'his father'
(2) unu 'mother' > un > unu-u > unu(hu) 'his mother'
(3) sik 'eye' > sik > siki-i> siki(hi) 'his eye'
(4) tek 'hand' > tek > teke-e> teke(he) 'his hand'

According to this phonotactic rule as shown in all the examples, there needs to be inserted a consonant between the two identical vowels in order to avoid the vowel sequence. If two different vowels appear in sequence, then the second vowel will become the semivowel equivalent. But in this case the sequential vowels are identical, so this second rule would not apply and we must resort to the former rule. Thus, we can claim that the original forms are the ones without {-h-} in the suffixes, that is, the suffixes that consist of only one of the five vowels.

Now, we wonder which vowel(s) the proto-form of the 3rd person possessive suffix had. In this connection, Vovin [1993:43-47] gives us some hints: He takes up all the nominals with this type of suffix and analyzes them in terms of the combination of the vowel suffix with the vowel of the nominal root. He finds that the suffix form -i is used in all the cases (i.e., regardless of the vowel of a nominal root) and that the suffix form -u is also employed with the root vowel -a- as well as with -i- and -u- (see below). [He contends that the other suffix forms are derivations of the suffix -i or -u.] This seems to imply that there exists a distinction between the two sets (-a-[root vowel]-i[suffix] and -a-[r.v.]-u[suf.]). But, since we find that such other combinations as -i-u (1 eg.), -u-u (3 egs.), -e-u (none), and -o-u (none) are rare, we infer that the combinations -a-u and -i-u may be contaminations of the choice of a vowel suffix, and only the suffix *-i may be original.

[2.2] verbal suffixes

(a) transitivizing use

We have so far looked at the intransitivizing prefix i- as nominalizing transitive verbs. Here we have the suffix -i doing the opposite, i.e., transitivizing intransitive verbs, but it does not serve to nominalize the verbs. These derived transitive verbs are limited in number, just like the above possessive nominals.

Now, consider the following examples [Kindaichi & Chiri 1936:77-9,88-90; Kindaichi 1960:179]:

(1) us-i 'attach' < us 'be worn (e.g.beard)' [1960:179]
(2) as-i 'stand (vt)' < as 'stand up (vi)' [1960:179]
(3) an-i 'have' < an 'exist' [1936:79]
(4) car-i 'scatter (vt)' < car-ke 'dispersez (vi)' [1936:78]
(5) tur-i 'stretch (vt)' < *tur 'extend?' [1936:78]

This suffix seems to be a remnant of the older productive transitivizing suffix *-i, with the other variants(-a,-e, -u,-o), which appear to be to some extent mutually exclusive, i.e., in complementary distribution with each other including the suffix -i, with some contaminations of the choice of a suffix. But in fact they are not.

Vovin [1993:47-51] claims that the original transitivizing suffix was in the two different forms -i and -u, and that the other suffix forms are innovations from either -i or -u. He takes up all the verbal roots with this type of suffix and analyzes them with respect to the combination of the suffix form with the vowel of the verbal root. He concludes that the distinction between the suffix forms -i and -u is real, and that these two suffix forms may have been the original ones. This distinction, however, seems not to exist, because we have only the following small number of cases with the suffix form -u, whereas the suffix form -i can take any root vowel: there is no case of the combination of -o-[r.v.] with -u[suf]; there are only 3 cases of the combination of -i-[r.v.] with -u[suf].

Further, Vovin states that he does not know why the transitivizing suffix yields a clearer picture in combinations of root vowel and suffix vowel than do the possessive suffixes: the statistics of the transitivizing suffix yield original forms -i and -u, whereas those of the possessive would yield only the original form -i. This fact seems to imply that the distinction between the two suffixes, -i and -u, may not be real, and the original suffix may be the form -i only, which then developed into the other form -u in some cases. Especially in the case of the transitivizing form -u, the original transitivizing suffix *-i became -u under some conditions, which cannot be explained at this point. Thus, we assume that the original transitivizing suffix may have been just *-i.

(b) nominalizing use

The transitivizing suffix -i can also create nominals from verbals. (Note that in Ainu there is no category of adjectivals and all adjectivals belong to verbals.) In this case, -i denotes 'V-ing, in V-ing, a V-ing person/ place'. For example [Kindaichi & Chiri 1936:48; Kindaichi 1960:68]:

(1) san-i 'offspring' < san 'descend,go out'
(2) esan-i 'slope' < esan 'go down there'
(3) itak-i 'saying' < itak 'tell'
(4) pirka-i 'good deeds' < pirka 'good'
(5) ramu-i 'thinking' < ramu 'think'
(6) an-i 'existence,a place/time' < an 'exist'
(7) wen-i 'bad deeds' < wen 'bad'

The suffix -i in all the examples above originates from the verbals. It is interesting to note that the word itak, both nominal and verbal, is derived from tak 'to invite', and so the word itak 'to speak (v), language (n)' is made of the intransitivizing/nominalizing prefix i- and the verbal tak 'to invite'. Then, by suffixing the nominalizing -i to the word itak, the word itaki is created. This process of adding the two nominalizing affixes seems to make the words more abstract in meaning. Also note that the nominalizing suffix -i makes nominals from any kinds of verbals regardless of transitive or intransitive states, whereas the nominalizing prefix i- makes nominals only from transitive verbals.

The original form of this nominalizing suffix may be either -i or -hi: the suffix -i is used in most cases, and the other suffix -hi is sometimes employed after a vowel only, but never before a consonant. This fact suggests that a consonant-final root (which may tend not to affect the following vowel suffix) may take the original form, that is, *-i, which is, as seen above, the phonotactic rule to avoid a sequence of two vowels. Thus, -i may have been the original form of this suffix. The process of change may have been the following:

(1) ramu 'think' > ramu + i > ramuy [> ramuhi]
(2) oka 'exist' > oka + i > okay [> okahi]
(3) pirka 'good' > pirka + i > pirkay [> pirkahi]

From all this evidence, we may conclude that all the various affixes i can be labeled as "deictic pronominal affixes," which may have been derived from "deictic pronominals," which then became affixes. We will compare it in later sections with all the functions of various nominals, pronominals and affixes i in Austronesian languages.

II All the Functions of the Ainu affix *si

[1] Prefixes

[1.1] nominal prefixes

(a) 'true/real/main'

The meaning of 'true' here is something like 'main, central, exact' and that of 'real' is to show emphasis or exclamation. We will look at the following examples [Kindaichi & Chiri 1936:110; Kindaichi 1960:157]:

(1) si-pet 'mainstream' < pet 'a river'
(2) si-so 'important seat' < so 'seat,floor'
(3) si-cupka 'exact east' < cupka 'east'
(4) si-cuppok 'exact west' < cuppok 'west'
(5) si-ipe 'salmon' < 'real meal' < ipe 'meal' [1960:157]

The si- in examples 1, 2 and 5 denotes 'main/central, real/true', while the si- in examples 3 and 4 has the meaning of 'exact'. Tamura[1988:67] claims that this prefix si- must originally have been a verb, but this claim lacks evidence [see (b)].

(b)'great'

Although Kindaichi & Chiri [1936:110;1960:157] treat the meaning of this prefix simply as 'big', it of course has such connotations as 'strong, main, important', depending on whether animate or inanimate objects are spoken of, so that the real meaning of this prefix is 'great'.

The meaning 'real' develops into the meaning 'central/main', which is associated with the meaning of 'great'. This meaning 'great' has the meaning of 'bigness' with such connotations as 'strong, fierce, harsh', as opposed to mo 'tiny' with such connotations as 'weak, gentle, calm' (si-yuk 'bear' vs. mo-yuk 'badger, leopard'; si-sir 'mountainous area' < 'a place unsuitable for human habitat' vs. mo-sir 'true land' = 'a place suitable for human habitat') [for more examples, see Fujiwara 1994:128-143]. The meaning 'real' with 'central, main' within it is normally thought to be 'great', which is unmarked, as opposed to the meaning 'small', which is marked.

(1) poro si-apka 'a truly big stag' < apka 'a stag' [1960:157]
(2) poro si-us 'a true gulf' < us 'a place' [1960:157]
(3) si-poro pet 'a truly big river' < pet 'a river' (cf. pon mo-nai 'stagnant current (of a stream)') [1994:132]
(4) si-soya 'a big yellow jacket' < soya 'a wasp' [1936:110]
(5) si-atuy noski 'the center of the true ocean' < atuy 'ocean' [1936:110]

The prefix si- in all these examples can be translated as 'true, truly', which can be changed to such related meanings as 'strong, fierce' in examples 1 and 4, 'rapid' in example 3, as opposed to 'stagnant' (in the cf. example). Also notice that the position of the si- in examples 1 and 2, vs. 3, is syntactically different in that the si- in examples 1 and 2 is located between the verbal poro and the nominal apka and us respectively, while the si- in example 3 appears immediately before the verbal poro. In either case, the prefix si- directly modifies the following nominal, although the adjectival may come in between the prefix and the nominal. To put it more precisely, we are allowed to regard the si as the prefix only when it appears immediately before a nominal, not immediately before a verbal, so that in that sense the si in example 4 is regarded as a verbal or an adverbial instead of a prefix.

The relatively free syntactic position of si implies that the si is originally an attributive nominal to make emphasis on the following nominal and then may be developed into a prefix.

(c) pseudo-reflexive use: 'self'

This use of the prefix si- is very common with nominals, meaning 'to oneself' in CA and MA. The prefix si- originally functions as a deictic/emphatic pronoun, but then becomes a specialized deictic nominal pointing to one's own physical area the action refers to. Consider the following [Kindaichi & Chiri 1936:110; Kayano 1996:260-72]:

(1) si-etu-uyna 'to self-nose-take' [1936:110]
'hold one's own nose'

(2) si-par-uyna 'to self-mouth take' [1936:110]
'cover one's own mouth'
(3) sisam-utar < si-sam-utar 'to self-near-friends'
'Japanese people' [1996:264]
(4) si-oka-un 'to self-back-toward' [1996:260]
'behind oneself'
(5) si-or-or-un 'to self-place-place-at/to' [1996:272]
'to/at one's own place'

The prefix si- in examples 1 through 3 shows 'self' with the following common nominals, whereas that in examples 4 and 5 shows 'self' with the following locational nominals. Although the third example shows that the si of sisam is an inseparable part of the word sisam, the si is still identifiable as a prefix when compared to the locational nominal sam 'near, beside'. Furthermore, although the translation of the prefix si- is mostly 'one's own ~', the si is in the indirect objective case, as shown above. This implies that the si was originally a pronominal, as in the case of the objective use of the 1st person prefix i-.

This nominal pseudo-reflexive prefix si- may be the same as the verbal reflexive prefix si- meaning 'self', shown in [1.2]. From all this evidence, we may conclude that the prefix si- may be derived from a deictic pronominal *si.

[1.2] verbal prefixes

(a) reflexive use: 'self'

The verbal prefix si- is the involuntary reflexive (as opposed to the voluntary reflexive yay-[Kindaichi & Chiri 1936:110: Kindaichi 1960:153-8]

(1) si-etaye	'withdraw, retire, pull oneself'
(2) si-suye	'sway (vi), shake oneself'
(3) si-moye	'move (vi), move oneself'
(4) si-kasuy-re	'have one help,cause s.o. to help oneself'
(5) si-nukar-e	'attract s.o. (by appearance), show oneself'

(5-1) rorunpe etokta yaykamuy-sinukare.
rorunpe etokta yay-kamuy-si-nukare.
battle before self-god-self-show
'he makes himself a god before the battle'

(6) aynu otta sinomiyar.
aynu or-ta si-nomi-yar.
human to self-make-cause
'he is made a god'

In all these examples, the involuntary reflexive meaning seems to have been retained. The prefix si- appears to be in the direct objective case in examples 1,2,3,5 and in the indirect objective case in examples 4,6, but that prefix itself does not assign any case to the noun in each case. Instead, the syntax determines the case.

(b) causative verbals

This prefix si- is always used with a causative suffix -re and the verbal phrase means 'pretend to do s.t.'. Consider the following [Kindaichi & Chiri 1936:111]:

(1) si-aspa-re	'pretend to be deaf'
(2) si-ihosiki-re	'pretend to be drunk'
(3) si-ray-re	'pretend to be dead'
(4) si-hacir-e	'pretend to fall, fall on purpose'
(5) si-ne-re	'pretend to be s.t., turn into s.t.'
(6) si-okkay-nere	'pretend to be a man'

It is difficult to bring ourselves up to the meaning 'pretend to do ~' by adding the prefix si- and the suffix -re to the root. Take example 1, for instance: the root is aspa 'deaf'. By suffixing -re to aspa, it becomes aspare 'cause to become deaf'. And finally, by prefixing si- to aspare, it becomes siaspare 'cause s.o. to become deaf without an intention', which comes to mean 'make believe that one is deaf'. This shift of viewpoint from a 3rd person to the speaker certainly bears on such reflexive meaning of 'self' as that of (a) above, and so its use may be derived from the same deictic pronominal *si.

[2] Suffixes

[2.1] nominal suffixes

(a)emphasis

We have found only four examples of this kind of suffix, which are shown below [Kindaichi & Chiri 1936:144,168; Kindaichi 1960:61-2].

(1) tasi 'the very,indeed' < ta-si 'that'-[emp.]
(2) nesi 'the very,indeed' < ne-si 'that'-[emp.]
(3) nesun 'the very,indeed' < nesi-un <ne-si-un 'that'-[emp.]-'place'
(4) kasi 'the very top' < ka-si 'top'-[emp] [1936:168;1960:62]

Since these examples are the only ones that exhibit this use of the suffix -si, this kind of suffix -si was probably once productive, but then for some reason it became fossilized into part of a word and is no longer a separate suffix. Example 4 clearly indicates that the -si was originally an emphatic suffix to emphasize the nominal ka 'top' immediately before it, and the same can be said about the emphatic suffix -si in the other three examples. But then these entire words have become emphatic words to emphasize the nominal phrase of a sentence.

In Kamui Yukar (Sin'yoshu), there are some examples of correlative relationship of tasi and nesun with an-ne[sg.] and okay-ne[pl.] respectively, although this correlative relationship may not be always necessary. Consider the following examples:

(1) pon horkew sani e-ne ruwe tasi an-ne. [Sin. 78]
pon horkew sani e-ne ruwe tasi
small wolf lineage[2p.sg]-be [suf.certain][emp.]
an-ne
exist[sg.]-be
'you are a tiny wolf'

(2) wakka ewen hawe nesun okay-ne. [Sin.122]
wakka ewen hawe nesun okay-ne
water lack [suf.hearsay][emp.] exist[pl.]-be
'I hear they are having a hard time running out of water'

(3) asetur kasi yayrarire. [1960:62]
a-setur ka-si yay-rari-re
my-back top-[emp.] self-hold-cause
'he touches the very top of my back'

This correlative relationship became once so strong and frequently used that it was fixed into a new syntactic pattern, but later the relationship became loose.

[2.2] verbal suffixes

It seems that Ainu does not have any verbal suffix -si.

To sum up, the nominal prefix *si- meaning 'real, true, great' and the nominal suffix *-si may be grouped together with some emphatic meaning, which may have been derived from an deictic pronominal, just like those of *i. The pseudo-reflexive prefix *si- and the reflexive suffix *-si may have the special deictic function that the action refers back to the agent who acts on the object. The causative prefix *si- may be a special case of the reflexive prefix *si-. Thus, the last three prefixes *si- appear to be grouped together with a special deictic function. But all the functions of the affix *si may ultimately be labeled as deictic affixes, and may be in common with those of the affix *i, although the functional distribution of the affix *si is much more restricted than that of the affix *i.

[3] Personal and Demonstrative Pronouns

[3.1] 3rd person or demonstrative pronoun

Although Kayano [1996:260] lists si 'it [possessive; objective], that [possessive;objective]', which cannot distinguish a pronoun from a prefix, he does not give any examples. We also checked all the words under si in his dictionary, but we did not find a single example where si can be translated as 'it, that'. Hence, we assume that there is no 3rd person nor demonstrative pronoun nor even affix si, and that it is just a ghost word.

III All the Derivatives of the Proto-Austronesian Pronominal *i

According to Sakiyama's [1990:215] reconstruction of the Proto-Austronesian (hereafter PA) third person pronoun(s) *i [sg.] (and *si[pl.]) based on previous scholars' works on them, we can reconstruct PA deictic pronominal(s) *i (and *t'i). They can be in a relatively free position with respect to a nominal and verbal within a sentence [Sakiyama 1990:206]. This deictic pronominal *i may have basically developed into the following derivations in various Austronesian languages.

[1] Articles

[1.1] definite article

* *i* can function as the definite article in the following examples, but this use is not widely found in Austronesian languages. This function seems to be one of the oldest of all functions, since it is more general than that of the other uses.

When we find many examples, we will list only a few examples, and the rest with its language name and the source.

Chamorro: i [Topping 1973:132]
(1) i patgon
i patgon
[def.art.] child
'the child'

(2) magof i korason-hu
magof i korason-hu
happy [def.art.] heart-[1p.sg.pos.]
'my heart is happy'

Biak: i [Sakiyama 1990:206]
(1) romawa i
romawa i

boy [def.art.]
'the boy'

As shown above, this particle is independent and specifies either the following or the preceding noun.

[1.2] personal article

This function of *i is probably derived from [1.1] the definite article, with which nominals are used for both animate and inanimate. The function of the definite article may have become restricted to animate beings, especially to humans. The functional distribution of this article *i may have become narrowed mainly because of the appearance of another pronoun *si (which will be dealt with in a later section), which has the same function as a personal article *i. Here is only one case without an illustrative sentence:

Mota: i [Sakiyama 1990:206]

[2] Personal Pronouns

[2.1] 1st person singular pronoun

The 1st person singular pronoun *i is derived from the 3rd person singular pronoun *i. This is based on the fact that there are a number of cases of this derivation in various Austronesian languages in many different parts of the world. Note the following examples:

Sonsorol: i [Capell 1969:38-9]
(1) i baŭγø [1969:38]   (2)i tei matakŭ [1969:38]
i baŭγø   i tei matakŭ
I see/saw   I not be afraid
'I see/saw'   'I am/was not afraid'

Trukese: i [Capell 1969:55]
(1) i fadŭ fadŭ pølunŋ̣e-i   (2) i bwe tita pøluŋ̣ -om
i fadŭ fadŭ pølunŋ̣e-i   i bwe tita pøluŋ̣ -om
I put on hat-my   I will put on hat-your
'I put on my hat'   'I will put on your hat'

Gilbertese: i [Cowell 1951:9-31]
(1) i tangira te amarake [1951:9]
i tangira te amarake
I like(want) [def.art.] food
'I want the food'

(2) i tauia ataei [1951:9]
i tauia ataei
I hold children
'I am holding children'

All these examples clearly show that the i is the 1st person singular pronoun 'I'. There is nothing more to comment on.

[2.2] 2nd person pronoun

The use of the 2nd person pronoun marked by i can be found in very few languages. One case is shown here without any illustrative sentences:

Sakao: i [Guy 1974:41]

The 2nd person pronoun i may have been derived from the 3rd person pronoun i by way of the 1st person pronoun i. This claim is based on the fact that the 1st person pronoun i is derived from the original 3rd person pronoun.

[2.3] 3rd person pronoun

Wherever the original pronominal *i has come to be used as the 3rd person pronoun, it is, in almost all cases, the 3rd person singular pronoun, which rarely appears as the plural equivalent. This is probably because the original pronominal may have pointed to a definite and specific thing (as opposed to indefinite and general thing), which is manifested as singular rather than plural. There are also numerous cases where it is manifested as the 3rd person pronominal affix i, exemplified in the separate sections later. The following are the examples of this function:

Tolai: i [Mosel 1984:93-111]
(1) ia iat i ga kap ia [1984:94]
ia iat i ga kap ia
[3p.sg][emp.part.][3p.sg.nom.] [tens.] take [3p.sg] 'he himself took it'

(2) i tangi [1984:108] (3) i ga ruk. [1984:156]
i tangi i ga ruk
[3p.sg.nom.] cry [3p.sg.nom.][tens] enter 'he cried' 'he entered'

Sio : i [Sakiyama 1990:206]

Makura: i [Sakiyama 1990:206]

[3] Predicate Introducer

This function probably developed from the 3rd person nominative pronoun by gradually changing the focus from the subject to the predicate, and by the obligatory presence of the pronoun immediately before the predicate. In other words, the obligatory presence of this 3rd person pronoun may have served not only as the nominative marker but as the predicate introducer at one time or another. These two functions are both sides of the same coin, so that it is very difficult to distinguish them.

The predicate introducer may have existed as a distinct function in Proto-Oceanic (Sakiyama 1990:209). Here are some examples:

Tolai: i [Mosel 1984:36;92-3]
(1) a tutana i vana. [1984:36]
a tutana i vana.
[art.] man [pred.int.] go
'the man went'

(2) a tutana i mulmulum. [1984:92]
a tutana i mulmulum
[art.] man [pred.int.] be-hungry
'The man is hungry'

Tok Pisin: i [Sakiyama 1990:206]
(1) em i go [1990:206]
em i go
he [pred.int.] go
'he goes'

[4] Case Particles

This function indicates a specific case under some specific conditions, which probably developed from emphatic use. Although the author uses the term 'a case particle', he uses it strictly in a semantic sense and does not propose that the following languages have a formal case system.

[4.1] vocative case particle

This case is the only sub-category of this genre. This is because this use does not fit in some other category such as preposition, so that this category is created specifically for this use. Here we have some examples of this function:

Fijian: i [Schütz 1985:355-6]
(1) i Filipe, na vei-vale cava ga [1985:355]
i Filipe, na vei-vale cava ga
[voc.] Filipe [def.art.][distr.]-house what [lim.]

'oh, Filipe, which house?'

(2) i tama-qu [1985:355]
i tama-qu
[voc.] father-[1sg.pos.]
'oh, father'

(3) i Sai! [1985:356]
i Sai
[voc.] Sai
'oh, Sai'

The vocative case particle i is followed by a personal name or title, which precedes the main part of the sentence, and the vocative phrase is distinguished intonationally apart. This is shown by examples 1 and 2.

A vocative phrase alone can also serve to get the addressee's attention, shown by example 3.

[5] preposition

There are numerous Austronesian languages where a preposition is used to specify various cases. The following prepositions have been found, and it is possible to add more prepositions of different kinds to the list.

[5.1] nominative use

We find only the following example:

Puyuma: i [Tsuchida 1980]
(1) i ama li
i ama li
[nom.] father/uncle [1p.sg.pos.]
'my father/uncle [nom.]'

In this example, i serves as the nominative case preposition under the condition that it needs to be immdiately before the personal pronoun (and relative clauses[singular only]).

[5.2] possessive/genitive use

Examine the following examples:

Lavongai: i [Stamm 1988:11-2]
(1) a ri vap i rina ke [1988:11]
a ri vap i rina ke
[def.art.] [pl.] men [gen.] village this

'the men of this village'

(2) a pat i lu [1988:11]
a pat i lu
[def.art.] roof [gen.] house
'the roof of the house'

(3) Maria, nuŋ̣ai a rinana tatam i Deo. [1988:12]
Maria, nuŋ̣ai a rina-na tatam
Maria [2sg] [def.art.] mother-[3sg.pos.][2sg.pos.]
i Deo
[gen.] God
'Maria, you really are the mother of God'

Bugotu: i [Sakiyama 1990:206]
(1) na huu i aho [1990:206]
na huu i aho
[art.] setting [gen.] sun
'sunset'

(2) dathi i bothe [1990:206]
dathi i bothe
small [pos.] pig
'piglet'

Fijian: i [Schütz 1985:458-9]
(1) ulu i Jone [1985:458]
ulu i Jone
head of Jone
'Jone's head'

(2)vinaka ke i Jone[1985:458]
vinaka ke i Jone
be good [clas.]-of Jone
'Jone's goodness'

All these examples show that the use of i functions as either the possessive or the genitive case. All the Lavongai examples of the preposition i indicate the relationship of the two nominal phrases, genitive but not possessive. The preposition i in the 1st Fijian example is a case where it follows the inalienable noun head and precedes the proper noun Jone, which shows one of the conditions where this preposition i has to be used. The 2nd Fijian example shows that the preposition i follows the classifier ke and precedes the proper noun Jone.

[5.3] accusative use

The accusative use is normally found in many Polynesian languages, as shown below, and is also found in some other Austronesian languages. Consider the following:

Fijian: i [Schütz 1985:355]

(1) A: au rai-ci Jone / au rai-ci Jone
'I saw Jone' [1sg] see-[trans] Jone
B: i cei? / i cei
'who?' [acc.] who
A: i Jone. / i Jone
'Jone' [acc.] Jone

Hawaiian: i [Elbert & Pukui 1979:52-3]

(1) komo i ka lole [1979:52]
komo i ka lole
put on [acc.] [def.art.] dress
'put on the dress'

Maori: i [Biggs 1996:91]

(1) Kei te tiki a Rewi i ngaa kaawhe. [1996:91]
Kei te tiki a Rewi i ngaa
[pres.][inf.] fetch [prop.art.] Rewi[acc.][def.art.] kaahe
calf
'Rewi is fetching the calves'

(2) Kei te patu a Tamahae i ngaa kau. [1996:91]
Kei te patu a Tamahae i
[pres.] [inf.] hit [prop.art.] Tamahae [acc.]
ngaa kau
[def.art.pl]
'Tamahae is hitting the cows'

The discourse in Fijian illustrates the use of this i, which occurs when the phrase indicating the object takes place in isolation. This construction rather rarely occurs and some may say o cei instead of i cei [Schütz 1985:355]. This seems to imply that this use of i is an archaism.

In Hawaiian and Maori this use of i is very widely employed, and the phrase with this i is the goal of the action, exemplifying accusative usage. This use with other uses of i in many Polynesian languages clearly shows the original deictic function of the pronominal *i.

[5.4] locative use

This use of i is widespread in Austronesian languages, and many Polynesian languages have this locative use with many other uses. This use seems to be closest to the original use of i, since it specifies location. The following are some examples of this use:

Karo-Batak: i [Woollams 1996:99]

(1) i dauh-dauh nari kuidah enggo rëh beru Ginting.

i dauh-dauh nari ku-idah enggo rëh beru Ginting
[loc.] far-far from [1sg]-see already come female Ginting
'from a distance I could see that Beru Ginting had come'

(2) i lebé-lebé kelas [1996:99]
i lebé-lebé kelas
[loc.] front-front class
'before the class'

Gilbertese: i [Cowell 1951:43-7]
(1) i rakiki-u [1951:44] (2)i nako [1951:47]
i rakiki-u i nako
[loc.] side-[1sg.pos.] [loc.] bottom
'at/by my side' 'below'

Halia: i [Allen 1987:14;21]
(1) i mam [1987:14] (2)i lehana koru [1987:14]
i mam i lehana koru
[loc.] front [loc.] far very
'in front/in the past' 'very far away'

(3) lam e bus-u-m i kiou i ulaha [1987:21]
lam e bus-u-m i
[1pl.ex.][verbr.] run-away-[trans.phon.] [dir.]
kiou i ulaha
cave [loc.] bush
'we ran away to a cave in the bush'

Boumaa Fijian: i [Dixon 1988:152-3]
(1) a vale i Waitabu [1988:153]
a vale i Waitabu
[prop.art.] house [loc.] Waitabu
'the house at Waitabu'

(2) i le'utu [1988:153]
i le'utu
[loc.] forest
'in the forest'

Maori: i [Biggs 1996:91]
(1) ka noho teeraa tangata i toona whare. [1996:122]
ka noho teeraa tangata i toona whare
[incp.] live that man [loc.] his house
'That man lived in his house'

Samoan: i [Mosel & Hovdhaugen 1992:144]
Hawaiian: i [Elbert & Pukui 1979:122]

In general, as Karo-Batak, Halia and Boumaa Fijian show, this preposition i is used to indicate not only space but also time, although we do not find an example indicating 'time' in Gilbertese. In Karo-Batak the preposition i is used with certain reduplicated words, which give a sense of indefiniteness, imprecision or generality. Some locative nouns, such as lebé 'front' in example 2, are regularly reduplicated when the location referred to is more abstract than literal or physical [Woollams 1996:99].

It seems that, if there is this use of preposition or affix, then we often find some other locational meanings also, which are probably derived from the original deictic meaning. Note that most Polynesian languages have retained this locative preposition.

[5.5] directive use

The directive preposition i can be found in many languages and is used to indicate the direction or goal of the action. Here we have some examples:

Halia: i [Allen 1987:21]
(1) lam e bus-u-m i kiou i ulaha [1987:21]
lam e bus-u-m i
[1pl.ex.][verbr.] run-away-[trans.phon.] [dir.]
kiou i ulaha
cave [loc.] bush
'we ran away to a cave in the bush'

Hawaiian: i [Elbert & Pukui 1979:122]
(1) hele i loko [1979:122]
hele i loko
go [dir.] mainland
'go to the mainland'

Tahitian: i [Burbidge 1930:212]
(1) Ua haere matou i te anavai. [1930:212]
Ua haere matou i te anavai
[tens.] go we [dir.] [def.art.] river
'we went to the river'

Samoan: i [Mosel & Hovdhaugen 1992:143-5]
(1) fo'i mai loa ia 'olo i samo,.. [1992:143]
fo'i mai loa ia 'olo i samo
return [dir.] then [abs.] 'Olo [dir.] Samoa
'then 'Olo returned to Samoa,..'

Tongan: i [Churchward 1995:109-111]

These examples clearly show that the preposition i serves as a directive. This use may also have been derived from the original pronominal, just like the locative use.

[5.6] ablative use

The preposition i can even show the ablative case in some languages, but its use is normally specified by some other preposition. Here are some examples of this use:

Halia: i [Allen 1987:32]
(1) Alia u lama i han [1987:32]
Alia u lama i han
I [verbr.] come [abl.] village
'I came from the village'

Maori: i [Biggs 1996:91]
(1) i haere mai au i te whare. [1996:91]
i haere mai au i te whare
[loc.past] go [dir.] [1sg][abl.][def.art.] house
'I came from the house'

The preposition i in Halia indicates exclusively location in time and space. The Maori example shows that the preposition i is used to indicate the ablative use with the motion verb. In both examples, the preposition shows the starting point of the action.

[5.7] instrumental use

The instrumental use of the preposition i is also widely employed in various Austronesian languages. Here are some examples:

Hawaiian: i [Elbert & Pukui 1979:134]
(1) i ka 'olelo ke ola, i ka 'olelo ka make [1979:134]
i ka 'olelo ke ola, i ka
[inst.] [art.] word [art.] life [inst.] [art.]
'olelo ka make
word [art.] death
'Life is with(in) the word,death is with(in) the word'

Boumaa Fijian: i [Dixon 1988:153-4]
(1) au aa va'a-mate-a a pua'a yai i+na qou da'ai

au aa va'a-mate-a a pua'a yai
[1sg] [past] make-dead-[trans.] [art.] pig this

i+na qou da'ai
[inst.]+[art.] [clas.1sg.] gun

'I killed this pig with my gun'

(2) au na tali-a a dua a loga i+na voivoi yai [1988:154]

au na tali-a e dua a loga
[1sg] [fut.] weave-[trans.] [3sg] one [art.] mat

i+na voivoi yai
[inst.]+[art.] pandanus leaves this

'I will weave a mat with these pandanus leaves'

Samoan: i [Mosel & Hovdhaugen 1992:144]
(1) tuli le pusi i le salu [1992:144]
tuli le pusi i le salu
chase [art.] cat [inst.] [art.] broom
'chase the cat with the broom'

All the examples above, especially Boumaa Fijian and Samoan examples, clearly show this use, although the Hawaiian example may seem unclear in the translation.

This use of the preposition i is one of the derivatives of the original deicitic pronominal. The instrumental use of this preposition i also seems very commonplace in Austronesian in general and in Polynesian in particular.

[5.8] reason/cause (causal) use

The causal use of the preposition i can be found in some Austronesian languages. Here are some examples:

Hawaiian: i [Elbert & Pukui 1979:134]
(1) maika'i ka wahine i kana mau hana pono [1979:134]
maika'i ka wahine i kana mau hana pono
be good [art.] woman [reas.][3sg] [pl.] work right
'the woman is good because of her rightous deeds'

Boumaa Fijian: i [Dixon 1988:154]
(1) edatou sega ni vina'a-ta, i+na -na boi caa
[1988:154]
edatou sega ni vina'a-ta, i+na
[1inc.pau.] not that want-[trans.] [reas.]+[art.]
-na boi caa
[clas.]-[3sg] smell bad
'we would not want it because of its bad smell'

Although we find only two examples,they clearly indicate the use of the causal preposition i. This use may also have been derived from the deictic pronominal *i.

In the Samoan examples above, we can find only the causal use, namely ina, which has also some other related uses. Ina is also found in Hawaiian and Boumaa Fijian with adverbial clauses of time, purpose, and reason, and the i of ina in these languages may be the locational/directional use, which is the same as that in Samoan(Mosel & Hovd- haugen 1992:583-4,619-26).

The causal use may be closely related with the instrumental use because of the fact that the instrumental use may specify concrete things, whereas the causal use would involve abstract intangible things, so that there occurred a semantic shift from concrete to abstract.

[6] Ligature

The ligature of the original deictic pronominal is a semantic/functional reflection of the original functions. This use is found in some Austronesian languages. Here is one example of this use:

Puyuma: i [Sakiyama 1990:206]
(1) izu i HapuRaR [1990:206]
izu i HapuRaR
that[lig.] HapuRaR
'that HapuRaR'

This use is an innovation in Puyuma, and thus the parallel innovation with this would not be found in other languages, but this may be a significant innovation in terms of the developmental direction of the original pronominal *i. The ligature use may seem to have shifted from the genitive/possessive, which would make us understand the development of this use rather easily.

The original deictic function may have become weaker and weaker for some reason and eventually may have been changed to the connecting function, as shown above.

[7] Postpositions

This form of the derivative cannot be found in any Austronesian languages, probably due to the typological condition that nearly all the Austronesian languages are of the SVO type rather than the SOV type. Instead of this postpositional form we find suffixes in many languages, which will be dealt with in the later sections.

[8] Affixes

We find a large number of affixes derived from the original pronominal *i. Whether it becomes a prefix and/or a suffix depends on the language itself, and it becomes an affix rather freely.

[8.1] prefixes

There are numerous prefixes ramified from the original pronominal *i. The prefixes specify not only case (not a formal case system but its use in a semantic sense), but also nominalizing use, demonstrative use, and transitivizing use and so on.

(a) 3rd person pronominal use

The 3rd person pronominal use of the prefix i- is widely employed in various Austronesian languages, especially in Western languages of the Austronesian group. Here are some examples:

Tokia: i- [Ross 1994:681-4]
(1) i-funida [1994:681]
i-funi-da
[3sg]-hit-[imperf.]
'He is hitting (it)'

(2) i-biseig y-aoda [1994:684]
i-biseig y-ao-da
[3sg]-leave [3sg]-go-[imperf.]
'He is letting it go'(< 'he leaves and it goes')

Kilivila: i- [Lawton 1994:752-5]
(1) i-yagi [1994:752] (2) i-tam-βeka [1994:752]
i-yagi i-tam-βeka
[3sg]-shake [3sg]-sprout-big
'he shakes (it)' 'it grows strongly'

(3) i-kam-'koni [1994:754] (4) i-lagi [1994:755]
i-kam-'koni i-lagi
[3sg]-eat-try [3sg]-hear
'he tastes' 'he hears (it)'

Makian: i- [Voorhoeve 1982:12-3]
(1) i-có [1982:12] (2) i-naso Ternate [1982:13]
i-có i-naso Ternate
[3sg]-see [3sg]-go down Ternate
'he sees' 'he is going to Ternate'

Mbula : i- [Salme & Bugenhagen 1994:697]
Tawala: i- [Ezard & Yailo 1994:760-2]
Manamu: i- [Lichtenberk 1983:21,42-3,111-2]

This use of the prefix i- is clearly seen in these examples and seems to be most widely used in Austronesian languages.

The second Tokia example shows that this prefix i- is changed to a glide y-, an allomorph of i-, which appears before a vowel. Thus, the original form must be i-, not y-.

(b) demonstrative use

The demonstrative use of the prefix i- is closest to the 3rd person pronominal use (a), since the demonstrative sometimes serves as a 3rd person pronominal use, especial- ly when the 3rd person pronoun is lacking. The following examples show this use:

Woleaian: i- [Sohn 1975:72-3]

(1) i-yeel [1975:72]	(2)i-laal [1975:73]
[dem.]-this	[dem.]-that
'this here'	'that thing over there'

The prefix i- in these examples is normally used with a demonstrative and is recognized not as a prefix in modern Woleaian but as part of the words. However, this i- means 'that thing', which can be considered deictic. This may indicate that this i is a relic of the original function.

(c) nominalizing use

Nominalization of verbals seems to be widely spread in vast areas of the Austronesian linguistic area. Note the following:

Mota: i- [Sakiyama 1990:207]
(1) i-sar 'spear' < sar 'to spear'

Yami: i- [Asai 1936:34]
(1) i-lulai 'cradle' < lulai 'to swing'

Lenakel: i- [Lynch 1978:26]
(1) i-aklha 'thief' < aklha 'to steal'
(2) i-ahigîl 'old man' < ahigîl 'to be old'
(3) i-a-vînhenap 'senile person'< vînhenap 'to besenile'
(4) i-a-rou 'one who chases' < rou 'to chase'

Boumaa Fijian: i- [Dixon 1988:191-5]
(1) i-sele 'knife' < sele(-ta) 'to cut, slice'
(2) i-tui 'hammer' < tu'i(-a) 'to strike, knock'
(3) i-ti'oti'o 'place of residence, address' < ti'o(-ra) 'to stay, reside'
(4) i-bulubulu 'grave' < bulu(-ta) 'to cover with earth, bury'
(5) i-vivi 'roll (e.g. of toilet paper)' < vivi(-a) 'to wrap, bind, roll'
(6) i-vola 'letter, book' < vola-a 'to write'

(7) i-na'i(na'i) 'intention' < na'i-ta 'to intend'
(8) i-valu 'war' < valu-ta 'to make war on'
(9) i-boi 'a smell' < boi(-ca) 'to emit a smell'
(10) i-guu 'energy' < guu(-ta) 'to have energy, be eager for'

Chamorro: i- [Topping 1973:132-3]

There is only one example in Mota and Yami, so we do not know exactly what type of nominal a verbal becomes in these languages. In Lenakel, the prefix i- (+ V) or i-a- (+ C) converts a verbal or adjectival into a personal or agentive nominal, as the examples above show. i- and i-a- are in complementary distribution with each other, but the i- must be the original, because the other related languages have the prefix i-.

Boumaa Fijian has five semantically different types of nominalized verbals; we will take two examples of each type in the example sentences above:

1. the nominals in (1) and (2) show 'instruments'
2. the nominals in (3) and (4) show 'place'
3. the nominals in (5) and (6) show 'result'
4. the nominals in (7) and (8) show '(mode of) activity'
5. the nominals in (9) and (10) show 'general property'

This nominalizing prefix is widespread in Austronesian. In the Ainu language, as seen earlier, the same type of nominalization is found:by suffixing -i to the stem of a verb (and an adjective [only for transitivizing]), it becomes a nominal. It is very natural in Austronesian that a prefix in a language is cognate with a suffix in another language, so here too we have a suffix -i in Ainu, which can be compared and cognate with a prefix i- with the same function in the languages above. We do not know, however, at what stage this function would have been derived respectively from the original deictic nominal *i in both Ainu and the languages above.

(d) accusative use

The accusative use of the prefix i- can be found in several languages and is related to the 'goal of the action', so that some other uses such as locative, directive and so on are usually associated with this use. The following examples illustrate this use:

Ga'dang: i- [Walrod 1976:31]
(1) i-yufukku ino lapis-ku [1976:31]
i-yufuk-ku ino lapis-ku
[acc.]-use up-[1sg] [art.] pencil-[1sg.pos.]
'I will use up my pencil'

(2) i-letwannu ino ari? [1976:31]
i-letwan-nu ino ari
[acc.]-topple-[2sg] [art.] post

'did you push over the post?'

Kapampangan: i- [Formen 1971:115]
(1) i-qalbúg mu reng málan. [1971:115]
i-qalbúg mu reng málan
[acc.]-starch [2sg] [N.phra.com.pl.] clothes
'starch the clothes'

(2) i-lagá mu reng ébun [1971:115]
i-lagá mu reng ébun
[acc.]-boil [2sg] [N.phra.com.pl.] eggs
'boil the eggs'

The Ga'dang examples show that the verbal phrases are used idiomatically and that this use is not productive. This is because this use does not fit in the regular case pattern. However, this seems to imply that this use is a remnant of the old pronominal use because it is related to the other uses, such as locative and directive and so on.

The accusative use in Kapampangan is one of the typical uses of the prefix i-, and so this use is related to other uses as mentioned above. Thus, it is safe to say that this use of the prefix i- is one of the 'goal of the action' category, which is definitely related to the deictic aspect of the original pronominal *i.

(e) locative use

The locative use of the prefix i- is very common and widespread in western languages. The following are some of the examples of this use:

Lenakel: i- [Lynch 1978:24]
(1) i-s u [1978:24]
[loc/dir.]-lake
'at/to the lake'

(2) i-imwa [1978:24]
[loc/dir.]-house
'at home, homeward'

(3) i-rhe [1978:24]
[loc/dir.]-sea
'at/to the sea'

(4) l-auanu [1978:24]
[loc/dir.]-village
'in/to the village'

Ami: i- [He, et al. 1986:98]
(1) tajra i-lial cinira a nikalaŋ [1986:98]
tajra i-lial cinira a nikalaŋ
go [loc.]-beach [3sg] [part.] catch-crabs
'he goes to the beach to catch some crabs'

(2) i-luma? aj ku wama aku [1986:98]
i-luma? aj ku wama aku

[loc.]-house [perf.] [part.] father [1pl]
'our father was (at) home'

Boumaa Fijian:i- [Dixon 1988:152-3]
Bunun: i- [He, et al. 1986:101-3]
Ga'dang: i- [Walrod 1996:30]
Hiligaynon: i- [Wolfenden 1971:59-60]
Paiwan: i- [Dong & Ma 1986:17]

The Lenakel examples show that the locative (and directive) prefix i- or l- is mostly added to the nominal to make the locative (and directive) nominals. These locative prefixes are not recognized as prefixes in modern Lenakel but as part of the locative nominals. However, by comparing these words with the corresponding non-locative nominals (e.g., nî-síu 'lake', n-imwa 'house'), the initial i- seems to have been the remnant of the prefix, which probably goes back to the pronominal *i.

The prefix in the Ami examples clearly indicates the locative, but not directive. This piece (and other pieces) of evidence tend to show that the original locative prefix was *i-.

(f) ablative use

The ablative use of the prefix i- may be found in some Austronesian languages and is derived from the 'goal of the action'. Here is one example of this use:

Ga'dang: i- [Walrod 1976:30]
(1) i-dassangngu ino kargok so tarak. [1976:30]
i-dassang-ngu ino kargo-k so
[abl.]-lower-[2sg] [part.] cargo-[1sg.pos.] [part.]
tarak
truck
'lower my cargo from the truck'

Although we do not have more examples in Ga'dang, we are certain that this use of the prefix i- is related to other uses, since we have the same use in prepositions which may have been derived from the Proto-Austronesian pronominal *i.

(g) instrumental use

The instrumental use of the prefix i- is also very common in numerous Austronesian languages. This use is related with other the uses of such prefixes as accusative and locative. The following illustrate this use:

Tagalog: i- [Schachter & OTanes 1972:314]
(1) i-pampunas [1972:314] (2) i-pansuklay [1972:314]
[inst.]-for wiping [inst.]-for combing

'wipe with'	'comb with'
(3) i-pangguhit [1972:314]	(4) i-pagwalis [1972:314]
[inst.]-for drawing	[inst.]-for sweeping
'draw with'	'sweep with'

Ga'dang: i- [Walrod 1996:31]
(1) i-tabas-nu ino tabas-na [1996:31]
i-tabas-nu ino tabas-na
[inst.]-scythe-[2sg] [art.] scythe-[3sg.pos.]
'cut grass with his grass knife'

Palawan: i- [Tyron 1994:36]

All these examples certainly show that the prefix i- has the instrumental use, and we have nothing more to comment on.

(h) beneficiary use

The beneficiary prefix indicates the beneficiary of the action, so that it denotes 'for (someone)'. The following examples illustrate this use:

Kapampangan: i- [Forman 1971:116-7]
(1) i-kuá meng danúm i Lus. [1971:116]
i-kuá meng danúm i Lus
[ben.]-get [part.] water [goal] Lus
'get some water for Lus'

(2) i-salí mu kung tinápe [1971:117]
i-salí mu kung tinápe
[ben.]-buy [part.] [part.] bread
'buy some bread for me'

Bikol: i- [Mintz 1971:234-5]
(1) Puédeng i-bakál mo akó nin tamóng? [1971:234]
Puédeng i-bakál mo akó nin tamóng
[inq.] [ben.]-buy you me [indef.] blanket
'could you please buy a blanket for me?'

(2) Puédeng i-hílig mo akó nin sílya? [1971:234]
Puédeng i-hílig mo akó nin sílya
[inq.] [ben.]-bring down you me [indef.] chair
'could you please bring a chair downstairs for me?'

Ga'dang: i- [Walrod 1976:32]
(1) i-basan-nu i Toby si leburu. [1976:32]
i-basan-nu i Toby si leburu
[ben.]-read-[2sg][art.] Toby [art.] book
'read the book to Toby'

(2) i-lletratuwang ku i Juami
[ben.]-photograph [1sg] [art.] Juami
'I will take pictures for Juami'

Tagalog: i- [Schachter & OTanes 1972:310-3]

This use of the prefix i- is also very common and is related to other uses we have seen above. This use is related to the 'goal of the action' category, so this use is undoubtedly derived from the original pronominal *i.

(i) reciprocal use

This use of the prefix i- is also found in some languages, but we are not certain at this point that this use is related to other uses only in terms of this prefix. However, we have found the same use of a prefix si-, so that it would be safe to include this use as well. Here is one example:

Gilbertese: i- [Cowell 1951:12-3]
(1) i-raorao [1951:12]
[rec.]-friendly
'friendly with each other'

(2) a i-tangitangiri [1951:13]
a i-tangitangiri
[3pl] [rec.]-love
'they love each other'

(3) a i-buobuoki [1951:13]
a i-buobuoki
[3pl] [rec.]-help
'they help each other'

As shown above in these examples, the prefix indicates the reciprocal use and the verbals are all intransitive.

A category of prepositions is a typical part of speech in Austronesian, and some uses of the preposition i are comparable to those of prefixes in Ainu: (1) nominalizing use; (2) accusative use; (3) possessive use, the last two of which are found not only as a prepositon but as a suffix in Austronesian. The parallel developments and grammatical groupings between Ainu and Austronesian seem to indicate that they may go back to a common source, which is probably a deictic nominal *i, regardless of whether the relationship is cognation or massive (structural) borrowing.

[8.2] suffixes

There are as many uses of the suffix -i as of the prefix i-, and they are very similar to each other. These similarities are probably not accidental, and may have been derived from the same source, that is, the deictic pronominal *i.

Now we will examine all the uses of the suffix -i and will see what we can make of them.

(a) personal pronominal use

The personal pronominal use consists of five sub-uses:

(a.1) 1st person possessive use
(a.2) 1st person accusative use
(a.3) 3rd person nominative use
(a.4) 3rd person possessive use
(a.5) 3rd person accusative use

We will consider the 1st sub-use.

(a.1) 1st person possessive use

This use may have been derived from the 3rd person nominative or possessive use, since we have already shown that the 1st person pronominal forms (= preposition and prefix) must have been derived from the 3rd person pronominal forms. Here we have some exmaples of this use:

Sonsorol: -i [Capell 1969:25-8]

(1) mata-i [1969:26]
eye-[1sg.pos.]
'my eye'

(2) papa-i [1969:26]
father-[1sg.pos.]
'my father'

Trukese: -i [Dyen 1965:33-6]

(1) mááráár-i [1965:33]
relative-[1sg.pos.]
'my relative'

(2) qii-y [1965:33]
brother-[1sg.pos.]
'my brother'

(3) kykkyn-i [1965:33]
childhood-[1sg.pos.]
'my childhood'

(4) jettoo-y [1965:33]
coming-[1sg.pos.]
'my coming'

All these examples clearly illustrate the 1st person possessive use of the suffix -i.

In Trukese the suffix has an allomorph -y, which appears only after a vowel because the vowel makes the suffix -i a glide, which is a natural change in any language. Note that any inalienable nominal can take the 1st person possessive suffix.

(a.2) 1st person accusative use

This use may not be very common in Austronesian languages. It seems to be developed from the 3rd person accusative use, which we will consider below. Here is only one example:

Gilbertese: -i [Cowell 1951:31]

(1) e ata-i [1951:31]	(2) e taua-i [1951:31]
e ata-i	e taua-i
[3sg] know-[1sg.acc.]	[3sg] hold-[1sg.acc.]
'he knows me'	'he is holding me'

These two examples clearly show the 1st person accusative use of a suffix -i, which is parallel in case with the use of preposition i and of prefix i-. But the difference is that this accusative use of the pronominal suffix is restricted to the 1st person, while the other two (= preposition i and prefix i) are not.

In Ainu the same use of the nominal and verbal prefixes -i is parallel with that of the Austronesian verbal suffix -i in that both are restricted to the objective (accusative) case. But the difference is that in order to indicate the objective (accusative) use Ainu employs only the prefix i-, not the suffix -i, whereas in many Austronesian languages the accusative case is expressed in the forms of preposition i, prefix i-, suffix -i and so on, which are derived from the Proto-Austronesian affix *i.

(a.3) 3rd person nominative use

The suffix -i serving as the 3rd person nominative use is found in some Austronesian languages. Examples from one such language follow:

Yapese: -i [Jensen 1977:69,199-203,225]

(1) baey-i noeng [1977:69]
baey-i noeng
[fut.]-[3sg.nom.] swim
'he will swim'

(2) daab-i marweel [1977:200]
daab-i marweel
not[fut.]-[3sg.nom.] work
'he will not work'

(3) bea guyeeg [1977:203]
bea(<ba-i) guy-eeg
[pres.]-[3sg.nom.] see-[1sg.acc.]
'he sees me'

These examples undoubtedly show the 3rd person nominative use of the suffix -i attached to the tense marker.

Ainu has the verbal prefix i- with the same use as that of the Austronesian suffix -i, in that both have the same person and case, though the Ainu prefix is added directly to the verbal stem rather than to the tense marker.

The suffixation of -i to the tense marker as seen in Yapese is not very common, but the suffixation itself is very common regardless of whether it is suffixed to a tense marker or a verbal stem.

(a.4) 3rd person possessive use

This use may be mostly the possessive relationship, but some may be the genitive use. Note the following:

Tolai: -i [Mosel 1984:30,163-4]
(1) a bala-i ra tutana [1984:31]
a bala-i rȧ tutana
[art.] belly-[3sg.pos.] [art.] man
'the belly of the man'

(2) a pal ka-i ra tutana [1984:31]
a pal ka-i ra tutana
[art.] house [pos.clas.]-[3sg.pos.] [art.] man
'the house of the man'

Boumaa Fijian: -i [Dixon 1988:120-4]
(1) a liga-i Jone [1988:120]
a liga-i Jone
[art.] hand-[3sg.pos.] John
'John's hand'

(2) a loma-i Waitabu [1988:120]
a loma-i Waitabu
[art.] interior-[3sg.pos.] Waitabu
'the interior of Waitabu village'

(3) a wagona me-i Jone [1988:120]
a wagona me-i Jone
[art.] kava [clas.]-[3sg.pos.] John
'John's kava(s.th.drunk)'

The possessive use of the 3rd person singular is clearly shown in all the examples above. Note that this possessive use is not always used to indicate the possessed-possessor relationship: in the first and second Boumaa Fijian examples, when the possessed is a bound nominal and the possessor is a personal name (1) or a place name (2), and the possessed is a free nominal and the possessor is also a personal name,we get the pattern 'possessed-i possessor' [Dixon 1988:120]. Also, note that if the possessed is a free nominal, then the classifier needs to be added to the free nominal.

As discussed earlier, Ainu has two separate possessive affixes: one is a prefix i- [1.1(b)], which may serve as 'emphasis'; the other is a suffix -i [2.1(a)], which plays a major role in the 3rd person singular pronoun. Therefore, the latter would be the best candidate for cognateship with the Austronesian possessive suffix -i since both are possessive suffixes for the 3rd person singular pronoun.

(a.5) 3rd person accusative use

Observe the following examples of this use:

Tigak: -i [Beaumont 1974:115,128,143]
(1) ga vis-i [1974:115]
ga vis-i
[3sg.past] hit-[3sg.acc.]
'he hit him'

(2) ga giak gavan-i [1974:115]
ga giak gavan-i
[3sg.past] send remove-[3sg.acc.]
'he sent him away'

(3) rik lamon-i [1974:143]
rik lamon-i
[3pl] believe-[3sg.acc.]
'they believe it'

Toba-Batak: -i [Nababan 1981:77]
(1) dàŋ hubótó -i [1981:77]
dàŋ hubótó -i
not know-[3sg.acc.]
'I do not know it'

Gao : -i [Sakiyama 1990:207]
Trukese: -i [Dyen 1965:38-9]
Manam : -i [Lichtenberk 1983:21-2,52,122-7]

The 3rd person accusative use is clearly seen in these examples. This use in the Toba-Batak example may also be able to be treated as the demonstrative accusative use because of the demonstrative accusative use of this suffix as another part of speech.

This accusative use is probably related to the other 3rd person nominative and possessive use, although each use appears in each different language.

In Ainu we have seen the 3rd person objective uses of the verbal prefix, which are basically the same as the accusative function of these Austronesian languages mentioned above. This fact may seem to imply that this Ainu prefix i- may be cognate with that Austronesian suffix -i.

(b) demonstrative use

The demonstrative use of the suffix -i may be rare, but as seen in the demonstrative use of the prefix i-, it is possible or even probable that this use may have been one of the derivatives of the original pronominal *i. Observe the following:

Toba-Batak: -i [1981:77]
(1) nùŋŋa ditùhOr ibána bùkku-i [1981:77]
nùŋŋa di-tùhOr ibána bùkku-i
already [past]-buy [3sg] book-[dem.]
'I already bought the book'

(2) jabùkku-i [1981:77]
jabùk-ku-i
house-[1sg.pos.]-[dem.]
'my house'

The suffix -i in these examples undoubtedly indicates the demonstrative adjectival use, which seems to be a type of emphasis. We believe that is a type of emphasis because the nominal is specified with the personal pronominal (ibána in (1); ku in (2)) before it. Thus this suffix -i may also be labeled as a deictic/emphatic suffix, which is directly connected with the original deictic pronominal *i. This use may be related to the 3rd person pronominal uses we have seen earlier.

(c) transitivizing use

The transitivizing use seems to be an innovation, which is extremely commonplace in Austronesian languages. This use can be found in the following examples:

Mokilese: -i [Harrison 1976:54-5]
(1) kamehk-i [1976:54]
ka-mehk-i
[caus.]-embarrass-[trans.]
'to embarrass s.o.'

(2) ingkoad-i [1976:55]
ingkoad-i
roof-[trans.]
'to roof s.t.'

Kusaiean: -i [Lee 1975:178-181]
(1) aen-i [1975:178] (2) sahfuhl-i [1975:178]
iron-[trans.] shovel-[trans.]
'to iron s.t.' 'to shovel s.t.'

Nemi: -i [Ozanne-Rivierre 1994:853]
(1) tnon-i [1994:853]
run-[trans.]
'to pursue s.t.'

Indonesian: -i [Macdonald & Darjowidjojo 1967:93]
Lenakel : -i [Lynch 1978:65]
Ponape : -i [Lee 1975:410]
Raga : -i [Walsh 1994:814]
Toba-Batak: -i [Percival 1981:66]

These examples are clear enough, so there is no need of further explanation.

In Ainu we also have the same suffix -i with the same use as that of the Austronesian languages cited above. There is, however, a difference between Ainu and Austronesian in that the Ainu transitivized verbs are also the nominals at the same time, so that whether it is a verb or a nominal depends on the syntax, whereas the Austronesian transitivized verbs can never be the corresponding nominals.

(d) intransitivizing use

This use is just the opposite of (c) but seems rare in Austronesian languages. This use is probably connected closely with (c). Here is one example:

Halia: -i [Allen 1987:96-7]
(1) a barebana i gonogono-be tal-e-i a tsi kihau a tuhas [1987:96]
a barebana i gonogono-be
[clas.] people [verbr.] gather-[appl.]
tal-e-i a tsi kihau a
now-[trs.]-[ditrans.] [clas.] [dimin.] fowl [clas.] tuhas
trash
'the people heaped the trash on the little bush fowl'

(2) alia e katsin ranga-me-g-i lö e tamamulö [1987:96]
alia e katsin ranga-me-g-i
[1sg] [verbr.] want-to talk-[assoc.]-[1sg]-[ditrans.]
lö e tama-mulö
[2sg] [verbr.] father-[2sg.pos.]
'I want to talk with you (about) your father'

Allen [1989:96-7] states the following:

> When there are two or more participants in the clause that are nonactor and nonsetting in nature, their presence is marked or implied by the clitic -i "ditransitive" ...The ditransitive clause normally includes an object (e.g.(1)), although the presence of an object is not always required (e.g.(2)).... In (1) the ditransitive indicates that two cases besides a subject are present in the clause.

As explained above, all these examples indicate the intransitivizing use of the suffix -i.

In Ainu we have seen a similar structure, although it is normally considered as one of the 3rd person objective uses of the prefix i- (as opposed to the suffix -i) rather than the intransitivizing prefix. This is because the prefix i- in this case was not originally a prefix at all, but the 3rd person objective form. Therefore, it is best not to compare it with the Austronesian intransitivizing suffix -i.

(e) accusative use

The accusative use of the suffix -i is to indicate the object as the accusative. This use may not be very common, but it seems to be related to the other accusative uses mentioned above. Note the following examples:

Port Sandwich: -i [Charpentier 1994:835]
(1) e-xan-i na-nd'am [1994:835]
e-xan-i na-nd'am
[3sg]-eat-[acc.] [def.art.]-yam
'he eats the yam'

This use indicates that the transitive verbal xan 'eat' takes the object:when the object is explicitly expressed, this suffix -i can be deleted, so it seems that this suffix can be considered as a suffix of emphatic accusative use. This would imply that the emphatic aspect of this use may reveal the deictic function of the original pronominal *i.

(f) locative use

This use is one of the most common in Austronesian, just like the locative use of the prefix i-. This use of the suffix has to do with the goal of the action, as we have seen earlier. Here are some examples:

Javanese: -i [Poedjosoedarmo 1986:27-8]
(1) Pak Kerta n-jèjèr-i Pak Marta. [1986:27]
Pak Kerta n-jèjèr-i Pak Marta
Mr. Kerta next-to-[loc.] Mr. Marta
'Mr. Kerta took his place next to Mr. Marta'

(2) Wahyu ng-lungguh-i bantal [1986:28]
Wahyu ng-lungguh-i bantal

Wahyu sit-[loc.] pillow
'Wahyu sat on a pillow'

Duri: -i [Valkana 1995:17-21]
(1) ia joo ulah pura ku-pe-mate-i men-tuo poleq-i
[1995:17]
ia joo ulah pura ku-pe-mate-i
[3sg] [dem.] snake finish [1sg]-[caus.]-dead-[loc.]
men-tuo poleq-i
[verbr.]-live again-[3sg]
'the snake I killed came to life again'

(2) ia me-tawa, m-pe-tawa-i kaka-(n)na [1995:21]
ia me-tawa, m-pe-tawa-i
[3sg] [verbr.intr.]-laugh [actr.focus]-[caus.]-laugh
kaka-(n)na
-[loc.] elder brother-[3sg.pos.]
'he laughed, he laughed at his brother'

Karo-Batak: -i [Woolams 1996:56]
Motu: -i [Sakiyama 1990:207]

The Javanese examples are clear enough to reveal the locative use, whereas the Duri examples are less clear in terms of the semantics of the suffix; the latter may be in the directive. However, both uses may go back to the same pronominal *i.

(g) ablative use

The ablative use may be found in some Austronesian languages and may be related to other uses such as the locative, directive, and instrumental. The following example illustrates this use:

Javanese: -i [Poedjosoedarmo 1986:27]
(1) Yanta nge-doh-i Pak Kerta [1986:27]
Yanta nge-doh-i Pak Kerta
Yanta far-[abl.] Mr. Kerta
'Yanta is avoiding Mr. Kerta'

This use of the suffix -i is especially related to the locative use of the suffix, because the former may be considered to be part of the semantic range of the locative use.

(h) instrumental use

The instrumental use of the suffix -i is also common in Austronesian languages. Here are some examples of this use:

Kusaiean: -i [Lee 1975:179]
(1) Sepe el aen-i wes luhk ah [1975:179]
Sepe el aen-i wes luhk
Sepe [nom.] iron-[trans.inst.] [1sg.pos.] shirt
ah
[detmr.]
'Sepe is ironing my shirts'

Hiligaynon: -i [Wolfenden 1971:134-5]
(1) lutu-i ang bag-o nga pugon [1975:134]
lutu-i ang bag-o nga pugon
let be cooked-[inst.] [def.art.] new [lig.] stove
'let the new stove be cooked on (= cook on the new stove)'

These two examples show the instrumental use of the suffix -i; in the Javanese example, the suffix also has a transitivizing function, with the connotation of 'instrument', and this use may be in a transitional stage from 'transitivizing' to 'instrumental'. In Hiligaynon the instrumental use is found with a causative verb.

(i) imperative use

The imperative use of the suffix -i is found in some Austronesian languages, which may be derived from the pronominal *i. Here we have some examples:

Sedek: -i [Asai 1953:28-9]
(1) sa-y-i 'go!' < mwsa 'to go' [1953:28]
(2) ħa-y-i 'set about!' < maha 'to set about'[1953:28]
(3) mah-h-i 'drink!' < minaH 'to drink' [1953:28]
(4) ŋal-i 'take!' < maŋal 'to take' [1953:27]

Atayal: -i [Li 1994:286-9]
(1) puŋ̣-i 'listen!' [1994:286]
(2) pataʃ-i 'write!, draw!' [1994:286]
(3) KaniK-i 'eat!' [1994:286]
(4) puʃihuβ-i 'suck!' [1994:286]

Asai [1953:28 note] states that this imperative suffix is related to the Sangir imperative suffix -i,-e and the Tagalog impersonal suffix -i, which were originally suggested by Blake [1976:55], and the imperative -i derivatives are employed for the conditional mood. Furthermore, this imperative use resembles the Javanese suffix -a. Thus, the imperative use of the suffix -i seems to be related to other different uses of the suffix -i in other Austronesian languages.

This use is not found in other forms such as prepositions, prefixes, or pronouns, but seems to be found in some aboriginal languages of Taiwan.

These pieces of evidence suggest that all these seemingly different uses of the articles, particles, pronominals, prepositions, affixes, and ligature may be related to one another directly. This fact brings together not only all the Austronesian languages among themselves, but also Ainu (and Japanese, which has been discussed in another paper) in relation to the Austronesian languages. However, this does not mean that the Ainu language is an Austronesian language, but only that there is a stratum of Austronesian in Ainu, which seems to imply that there may have been either a genetic relationship between Ainu and Austronesian, or extensive Ainu borrowing from Austronesian.

IV All the Derivatives of Proto-Austronesian Pronominal *si (short form)

The Proto-Austronesian 3rd person singular pronoun was reconstructed as *(s)iɑ , whose short form was *i. Likewise, the Proto-Austronesian 3rd person plural pronoun was also reconstructed as *si(+d_2ɑ), whose short form was *si [Zorc in CAD pt.2 1995: 1142].

In such areas as the eastern part of Indonesia and the New Guinea region (which had tremendous influence on the Oceanic languages [cf.Ross 1988:28]), we find the 3rd person singular pronoun *i (short form) and the plural pronoun *si (short form), whereas the eastern Oceanic languages have the equivalent pair of *na and *la, (although there are some contaminations of these pairs in some New Guinea areas). However, the pronominal *si seems much more restricted in use than the pronominal *i, probably because the uses of the personal article *si, identical in form with the pronominal *si (see below), came to be distributed far more widely than the pronominal *si, and some of the uses of the pronominal may have been replaced by the equivalents of the personal article *si [cf.Capell 1976: 25-29].

[1] definite article

The definite article is used to specify the nominal with it. Here is only one example:

Roviana: si [Sakiyama 1990:210]

There is no sentence or phrase illustrative of this use, nor is there commentary on this example.

The definite article si goes back to PAN *si. Also there are many Hesperonesian languages, including the ones in Taiwan, where the personal article si, whose form is identical with and whose meaning is very close to the definite article si, is different in origin from the definite article si. The personal article si is derived from PAN *t'i, a personal particle [Sakiyama 1990:210].

[2] personal pronoun use

It seems that this use has three sub-uses:

(1) 1st person nominative use
(2) 3rd person nominative use
(3) 3rd person possessive use

The 1st person pronominal use may be derived from the 3rd person pronominal use.

[2.1] 1st person nominative use

We do not find any 1st person singular form but only a 1st person plural nominative form, which implies that this 1st person plural pronoun was derived from the 3rd person plural pronoun. Here are a few examples:

Woleaian: si [pl.in.nom.] [Sohn 1975:94]
(1) giish ila si shepar ngalig [1975:94]
giish ila si shepar ngali-g
[1pl.in.] [sent.int.] [1pl.in.nom.] trust-[2sg]
'as for us, we trust you'

Trukese: si [pl.in.] [Dyen 1965:25-7]
(1) si piin fiiwe [1965:25]
si piin fiiwe
[1pl] once fight
'we fought before'

(2) si ja piit t nyc [1965:26]
si ja piit t nyc
[1pl] [1pl] [fut.] go
'we will go'

The nominative use of the 1st person plural inclusive pronoun is clearly shown in the Woleaian example. The si in the Trukese examples appears in the head position in the sentences to indicate the subject of the sentences.

[2.2] 3rd person nominative use

This use may be closest to the original use, which is the plural use. Although no illustrative sentences can be cited here, its use may be the same as that of the 1st person plural pronoun.

Biak: si [animate] [Sakiyama 1990:210]
Sio : si [animate] [Sakiyama 1990:210]

In both languages this pronoun may be employed only to refer back to the animate, which seems to be an innovation of this pronoun in each language. This seems to imply that the original pronoun may once have had no restriction to the animate, but later may have become restricted to it.

[2.3] 3rd person possessive use

Consider the following examples:

Lavongai: si [Beaumont 1988:11]
(1) a pua lu si ri vap [1988:11]
a pua lu si ri vap
[art.] [pl.part.] house [3pl.pos.] [art.] people
'the houses of the people'

(2) a mani si anitun ke [1988:11]
a mani si anitun ke
[art.] money [3sg.pos.] man [dem.]
'the money of this man'

Atchin: si [Capell & Layard 1980:44]
(1) lolo'm si wiʃewin [1980:44]
lolo'm si wiʃewin
house [3sg.pos.] woman
'the house of the woman'

(2) (wiʃewin) si tutuʃän [1980:44]
(wiʃewin) si tutuʃän
woman [3sg.pos.] elder brother
'his elder brother's wife'

The possessive use of the preposition si, only in the possessed-possessor relationship, is never considered as the genitive case use: the possessor always refers to a human being.

The preposition si in the first Lavongai example shows the plural possession rather than the singular, whereas the one in the second example indicates the singular. We infer from this that the 3rd person possessive use may always take the form of si regardless of the number.

[3] indefinite pronominal use

It appears that the indefinite pronominal use of si may contradict the definitive use of si mentioned earlier.

This use specifies only an indefinite animate, not an indefinite inanimate; it may have been restricted to animates. Here we have an example of this use:

Bugotu: si [Sakiyama 1990:210]
(1) si na mane [1990:210]
si na mane
[ind.] [dem.sg] man
'a particular man'

Here the si specifies 'an indefinite man', so that its meaning amounts to that of the English translation 'particular' as shown above. It cannot point to 'someone who is known by that context', but only points to 'anyone who has certain characteristics'. In this sense, that preposition si indicates some indefiniteness, which may be derived from its generality. This aspect of the si may be paired with the opposite nature of the element i, i.e., the specificity of the i.

[4] affixes

We find both prefixes and suffixes of si, which show different uses.

[4.1] prefixes

There seem to be two different uses of the prefix si-.

(a) nominalizing use

The nominalizing use of the prefix si- may be a minor use, although that of the paired prefix i- seems to be a major one, and rather widespread. Here is an example:

Toba-Batak: si- [Van Der Tuuk 1971:245-6]
(1) si-panganon 'food'
(2) si-panimbangi 'the one who must pay the same
amount for the woman as that paid
by her former husband'

Van Der Tuuk [1971:246] states the following about this prefix:

> The prefix si- functions to form nominals and is often placed before a nominal derived from a verbal, in order to make the nominal a full one, so that its verbal character goes into the background.

From his statement the nature of this prefix is well understood, and in both examples above the prefix si- functions as a nominalizer.

(b) reciprocal use

The reciprocal use of the prefix si- is also found in some languages and is exactly parallel with that of the prefix i-. However, this use is also minor. Here are some examples of this use:

Duri: si- [Valkana 1995:25]

(1) si-kita 'see each other'	< kita 'see'
(2) si-ala 'marry'	< ala 'take'
(3) si-rari 'fight each other'	< rari 'fight'
(4) si-tammu 'meet each other'	< tammu 'meet'
(5) si-tiro 'look for each other'	< tiro 'seek'

Sama/Bajau: si- [Verheijen 1986:13]

(1) si-tuppi 'approach each other'	< tuppi 'near'
(2) si-rekkaq 'stick together'	< rekkaq 'stick'
(3) si-gagga 'quarrel'	< gagga 'strong'

The reciprocal use in Sama/Bajau is identical with that in Duri in terms of formation and semantics.

The goal of the reciprocal actions shown in these examples is directed to both the agent and the object, and that is the function of this prefix si-. In this sense, we can recognize the deictic aspect of the prefix.

[4.2] suffixes

We find only one use of the suffix -si. It seems that there are no other uses of this suffix.

(a) 3rd person plural nominative use

Bugotu: -si [3pl. animate] [Sakiyama 1990:210]

Although we cannot provide illustrative sentences, this suffix must be used to indicate the nominative use, just as the equivalent suffix i- does.

V Conclusion

All the uses of *i* and of *si* in Ainu may be probably derived from the deictic pronominal **i* and nominal **si* respectively. They are all comparable with Proto-Austronesian pronominals(short forms) *i and *si, although Proto-Ainu *si must have developed into the various semantically innovative affixes. It is possible that this Proto-Ainu *si is cognate with the equivalent in some other language family than Austronesian, such as Austroasiatic. (So it is an open question when such a superstock as Austric is considered). The Pre-Proto-Ainu pronominal *i [chart 2: Itabashi] and nominal *si also have developments similar to those of Proto-Austronesian [chart 3 : Zorc in CAD pts.

1&2, 1995] pronominals *i and *si or even to those of Pre-Proto-Austronesian. Especially when we compare the pronominals of Pre-Proto-Ainu and of Proto-Papua New Guinea [chart 4: Sakiyama 1990:215] and of Proto-Oceanic [chart 5: Sakiyama 1990:215], we clearly see the parallel forms and developments between Ainu and Austronesian.

Chart 1

Proto-Ainu Personal Affixes [Itabashi 1998:7]

[1] transitive, nominative

	singular	plural
1p	*ku-	*ti-
2p	*e-	*e-ti-
3p	--	--
indefinite	*a-	*a-

[2] intransitive, nominative

	singular	plural
1p	*ku-	*-as
2p	*e-	*e-ti-
3p	--	--
indefinite	*a-	*a-

[3] transitive, accusative

	singular	plural
1p	*en-	*un-
2p	*e-	*e-ti-
3p	--	--
indefinite	*i-	*i-

Chart 2

Pre-Proto-Ainu Personal Affixes [Itabashi 1998:7]

[1] nominative

	singular	plural
1p	*ku-	*ti-
2p	*e-	*e-
3p	--	--
indefinite	*a-	*a-

[2] accusative

	singular	plural
1p	*en-	*un-
2p	*e-	*e-
3p	--	--
indefinite	*i-	*i-

Chart 3
Proto-Austronesian Personal Pronominals
[Zorc in CAD pt.2 1995:1108,1121,1125,1142]

	singular		plural	
	long	• short	long	• short
1p.nom.inc.	---	---	*kit$_1$ɑ	*t$_1$a
1p.nom.exc.	*akú /*ku	*ku	*kamí	*mi
2p.nom.	#*(i-)kaSú	*Su	#*(i-)kaSú	*Su
3p.nom.	#*(s)iɑ	*i	#*si(+d$_2$ɑ)	*si

• : my reconstructions, based on Dahl's reconstructions
#: the parentheses are mine

Chart 4
Personal Pronominals of Original Papua New Guinea
(short form) [Sakiyama 1990:215]

	singular	plural
1p.nom.inc.	---	*ta
1p.nom.exc.	*a, *ya	*ma
2p.nom.	*(k)u	*(k)wa
3p.nom.	*i, *e	*si, *se

Chart 5
Proto-Oceanic Personal Pronominals (short form)
[Sakiyama 1990:215]

	singular	plural
1p.nom.	*a	*mêy
2p.nom.	---	---
3p.nom.	*i,*e,*na	*si,*se

We see that PAN **i* is specific and definite, because of the singularity of the 3rd person singular pronominal. This was ramified into various parallel and related uses and forms discussed above. On the other hand, PAN **si* is rather unspecific and indefinite, which reflect the plurality of the 3rd person plural pronominal.

This tendency of PAN *i also holds true for the Ainu pronominal *i, while the opposite tendency of PAN *si may also be true for the Ainu *si. Although the ramification of Ainu *si may be innovative, all the uses of Ainu si implicitly retain its original unspecific and indefinite nature. These parallel features imply that, although there might have been extensive linguistic contact, whether genetic or not, in an extremely early period, the remnants of the original forms *i and *si in Proto-Ainu have remained almost unchanged within the core of the Ainu language.

At this stage, we do not know exactly which type of linguistic relationship there was between Ainu and Austronesian: superficial borrowing, extensive structural borrowing (which makes a language a mixed one), or even a common origin. But the more extensively we research the comparative aspects with other languages and language families on the basis of some obvious parallels, the more successful we will be.

ABBREVIATIONS

abs:absolutive
acc:accusative
appl:applicative
art:article
C:consonant
certain:certainty
clas:classifier
con:conceptual
def:definite
dem:demonstrative
detm:determiner
dimin:diminutive
dir:directive
distri:distributor
ditrans:ditransitive
emp:emphatic
ex:exclusive
gen:genitive
imperf:imperfect
in:inclusive
incp:inceptive
ind:indefinite
inf:infinitive
int:introducer
lim:limiter
loc:locative
n:nominal
nom:nominative
p:person
part:particle
pl:plural
pos:possessive
pred:predicate
pref:prefix
pres:present
prop:proper
r.v.:root vowel
sg:singular
suf:suffix
trans:transitivizer
trans.phon:transitional phoneme
tens:tense
V:vowel
v:verb
Vi:intransitive
verbr:verbalizer

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The Contact and Genetic Relationships of Ainu

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0.0 Introduction

The Ainu language of Hokkaido Japan and the Sakhalin peninsula has long been considered one of the more impenetrable language isolates of the Old World. There have recently been two main hypotheses about the origin of Ainu: (1) that it is ultimately Altaic in origin (Patrie, 1982) or that it at least forms a subgroup with Korean-Japanese, a view held by Joseph Greenberg (Greenberg 1987, p. 332) (1), and (2) that it is Southeast Asian in origin, being related to either Austronesian or Austroasiatic (Vovin 1993, pp.162-174) or is a member of the Austric phylum, which has generally been considered to include the above two families as well as Tai-Kadai and Hmong-Mien (Hayes 1992, 1997).

In A Reconstruction of Proto-Ainu, Alexander Vovin provides some important cultural information which points to the potential Southeast Asian origin of the Ainu (Vovin 1993 (p. 162):

> Besides the cult of the bear, which is definitely of Siberian origin, the Ainu also had the cult of the snake, which definitely preceded the former... The cult of the snake is not seen in Siberia, but it is widespread in South-East Asia. The same is the case with the cult of the sword, which also has a definite southern origin. Neighboring Manchu-Tungus people and the Nivkh use the compound bow, while the Ainu use the simple bow that again is typical for South-East Asia. None of the Ainu neighbors used the loin-cloth as the only garment during the summer, and none of them used poison arrows. All these features exist only in the far more southern regions.

This, coupled with the comparative data slowly but surely coming to light (see both Vovin 1993 and this volume of Mother Tongue), indicate that the origin of the Ainu is ultimately to be found in Southeast Asia. The Ainu are, however, geographically rather removed from the rest of their putative kin and may be assumed to have reached their present location in one of two ways -- either by sea, which would have presumably kept them isolated from other peoples and languages until reaching Japan and Northeastern Siberia, or otherwise by land, which would provided ample opportunity to come into contact with other groups of people along the way. I believe that the latter must be at least partly the case, after having found what I believe to be lexical items in Proto-Ainu which have been borrowed from a mainland language not immediately adjacent to them, Proto-Korean.

1.0 Proto-Ainu and Proto-Korean

As Vovin points out (p. 157-8), Proto-Ainu contains several lexical items for which there is more than one reconstructible form. These seem to scattered throughout all categories of the grammar, with a higher incidence in the noun-class than any others (3). Many of the Proto-Korean parallels unsurprisingly match one of these items, which seems natural enough in a contact situation where the borrowed word had not replaced the native one before the break-up into dialects. In some cases however, the Korean borrowing is the sole entry represented for the particular meaning in Proto-Ainu.

1.1 *Lexical Parallels between Proto-Korean and Proto-Ainu*

The system of parallels between Proto-Ainu and Proto-Korean is the following (notice the conspicuous absence of PA *e and *o) (2):

Consonants		Vowels	
PA	PK	PA	PK
* p	* p, p^{h}, ps	* a	* a, a, aa
* t	* t, C, t^{h}, pt	* A	* e, a, a
* k	* k, k^{h}	* EE	* ii
* g	* -k-	* E	* e
* m	* m	* O	* e, a, o
* n	* n, ng	* +	* y
* s	* s, C	* ii, y	* i
* [s/g/h]	* C	* i	* ui
* r	* r, n^{y}	* uu	* uu, un
		* u	* u, y

In the following list, I put a (P) after any comparisons between Ainu and Korean originally suggested in (Patrie, 1982):

PA *agu= LH "to enter"; PK *ku= "to enter" (?)
PA *agu LL "tongue"; MK *akui "mouth" (< PK *ak= L)
PA *an= L "to hold [in one's arms]"; PK *aan= "to hold in the arms"
PA *[d/r]aanu HLL "to like, love"; PK *sarang LL "love"
PA *hO=[s/g/h]ip LL "to come/go home"; PK *Cip L "house"
PA *kAp L "skin, fir (sp.?)"; PK *kap^{h}= L, *kep^{h}= L "skin, bark" (P)
PA *mata LL "winter"; PK *mata L- "season"
PA *nay "stream, river"; PK *naai "river" (P)
PA *nAn L "face"; PK *na HL "id."
PA *nii "tooth"; PK *ni H "tooth" (P)
PA *nup "field", *nup(=)ki HL "to get muddy"; PK *nyp^{h} "swamp, marsh"
PA *nuu= HL "eye"; PK *nun H "eye" (P) (4)
PA *Os=kE HL "to knit, to weave"; PK *os H "clothes"
PA *pa L "head"; PK *paki HH "top of head" (P)
PA *pii "seed"; PK *psi "seed"
PA *p+r= L "to wipe"; PK *psyr= H "to sweep, wipe"
PA *rAm L "heart, soul, mind"; PK *man^{y}am LL "heart"
PA *say L "flock"; PK *saai "bird" (P)
PA *sEE "carry on the back"; PK *siid= "to load (on the back)"
PA *[s/g/h]+r=u HH (?) "to rub"; PK *syr^{h} L "to polish, rub off"
PA *sOs= L "to tear (it), to split (it)"; PK *pCyC(^{h})= H "to tear"
PA *tii LH "penis"; PK *CaaCi "penis" (P)

PA *tOy “earth, soil, ground, land”; PK *ptai H “dirt”
PA *trEk L “beard”; MK *t^{h}erek LL “hair; feather” (< PK *ter^h(i) L(H))
PA *tuu= “two”; PK *tuur^h “two” (?) (P)

1.2 _Proto-Korean *p[C]- clusters_

Special attention should be drawn to the following set:

(1) PA *pii “seed”; PK *psi “seed”
PA *p+r= L “to wipe”; PK *psyr= H “to sweep, wipe”
PA *[s/g/h]+r=u HH (?) “to rub”; PK *syr^h L “to polish, rub off”

Although the presence of two forms with the correspondence PA *p- ~ PK *ps- is striking, there is room for doubt about them for two reasons. The first is the lack of symmetry with the set:

(2) PA *sOs= L “to tear (it), to split (it)”; PK *pCyC(^{h})= H “to tear”
PA *tOy “earth, soil, ground, land”; PK *ptai H “dirt”

The forms in (2) establish a pattern whereby the initial labial stop of the clusters PK *pC-, *pt- fails to surface in their PA counterparts, but exactly the opposite takes place in PA “seed” and “to wipe”.

The second reason is the discrepancy in pitch contour between PA *p+r= L and PK *ps+r= H. If the PA *p- ~ PK *ps- set is not indeed valid, then that leaves the possibility open for the following alternative parallel:

(3) PA *[s/g/h]+r=u HH (?) “to rub”; PK *psyr= H “to sweep, wipe”

This comparison is advantageous because it maintains the symmetry between PK *p[C]- clusters and their PA counterparts, and also offers a potentially better pitch correlation. It becomes a bit more problematic semantically, however, as well as vocalically since the [+round] vowels of the PA forms *sOs= and *tOy in contrast with the [-round] vowels of their PK counterparts may be a retention of that feature from the initial PK clusters [pC-] and [pt-], which would not have a parallel in (3).

1.4 _“Broken” forms_

There is another set of potential borrowings from PK into PA which are more problematic because they assume that the PK item (or part of it) comprises only part of the PA form, with the other part of the word arising perhaps through compounding with a native element:

PA *dE=_kut_ LL “neck”; PK *_kut_ L “hole” (P)
PA *_gAn_ku HL “navel”; PK *merte_ken_ LLH “bird’s navel”
PA *hE_mOy_ LH “trout”; PK *_me_yuki -LH “trout”
PA *_ki_sAr LL “ear”; PK*_kui_ H “ear” (cf. PAN CalingaR for the second syllable?)
PA *_k[O/o]m_ta “elbow”; PK *o_kom_ LH “knee” (cf. PA tE(=)k “hand, arm”)

PA *_ti_(=)kir LH “leg, foot”; PK *het^hui LH “foot, leg”
PA *_tOk_kuri HLL “jug, bottle”; PK *_tok_ L “earthenware vessel”
PA *tu_mAm_ LL “trunk, waist”; PK *_mom_ H “body”

Note the similar reduction of the PK diphthong in the following two forms:

PA *_ki_sAr LL “ear”; PK*_kui_ H “ear”
PA *_ti_(=)kir LH “leg, foot”; PK *het^hui LH “foot, leg”

There is a potential problem with this form under the analysis given here:

PA *_k[O/o]m_ta “elbow”; PK *o_kom_ LH “knee”

Specifically, if PA *g developed in an environment PK *VkV, then we would expect the PA form above to begin with *g, not with *k.

2.0 Proto-Ainu and Proto-Nivkh

Vovin provides a set of lexical parallels with Proto-Nivkh (pp. 158-162), part of which I wish to comment on after having discussed the Proto-Korean above. To begin with, there are many parallels between PA and PN which seem straightforward, and these are listed below (data from _Savel’ieva and Taksami_ 1970, reference in _Vovin_ 1993; I provide Austerlitz’s data where possible, where AG = Amur Gilyak and SG = Sakhalin Gilyak):

PA *agi LL “arrow”; PN *k’i “crossbow”
PA *asir LH “new”; PN *c’ir “id.”
PA *daarak HLL “smooth”; PN *laklak “id.”
PA *du=p L “ice”; PN *lu=t “id.”
PA *gOn L “belly”; PN *k’o=k “id.” (cf. AG _go(=)R_, Austerlitz 1994, p. 230)
PA *hapur LH “to be weak”; PN *hepVt=la= “to be weak, fragile”
PA *i=up=u LLH “to tie (it)”; PN *i=up= “id.”
PA *maa “to swim”; PN *mV=te= “id.”
PA *nAn L “face”; PN *ngen^y=k “id.”
PA *naqa LH “still”; PN *na= “id.”
PA *nimara LLH “half”; PN *n^yilami “id.”
PA *nOk L “testicles, egg”; PN *ngojk “id.”
PA *nu=kar LH “to see, look at”, *i=n[u]=kar HLL “to be seen”; PN *i=nV=te=
“to see, look at” (cf. G n^yu= “see”, Austerlitz 1994, p. 229)
PA *numa LL “hair”; PN *ngem=k “id.”
PA *nuuman HLL “yesterday”; PN *nem=t “id.”
PA *nuy=kar HL “to comb”; PN *no= (id.)
PA *pat[E/e]k LH “only”; PN *patk “id.”
PA *ta= “this”; PN *te^2= “id.”
PA *tap L “shoulder, upper arm”; PN *tepV=s “shoulder blade”
PA *tiku= LL “tree”; PN *tik=t “id.”
PA *tiqu LL “tide”; PN *tui=p’ “current”

PA *top(=)sE HL “to spit”; PN *e=tVp=ai “id.”

Vovin shows the consonant correspondences (p. 159) between the above forms as well as those below, but notes that the vowel correspondences are premature since the vocalism for PN has yet to be worked out (the vowels in the above PN forms are his own, and he notes that they are hypothetical). If we are allowed to take these at face value for the time being, however, one may see the general regularity of the vocalic correspondences as well, where the vowel is reconstructible for PN (note particularly that PN *e corresponds to PA *u(u) when followed by a labial nasal (“hair”, “yesterday”), but to PA *a (“to be weak”, “this”, “shoulder, upper arm”) or PA *A (“face”) elsewhere).

I consider the following examples to be more problematic vocalically, and it is important to note that four of them (both “tooth”s, “eye”, and “flock”) have alternative etymologies elsewhere in this paper (see section 4.0):

PA *ima(=)k LL “tooth”; PN *em=s “molar tooth”
PA *nEE= LL “who, what”; PN *nu= “what”, *na=t “who”
PA *nii “tooth”; PN *nge=ks “id.”
PA *nii “tree”; PN *nge=ks “bushes”
PA *nuu= HL “eye”; PN *n^{y}a=k “id.” (cf. PN *n^y(=)nga(=)R “eye”, where the first segment is related to N n^{y}u= “to see”, Austerlitz 1994, p. 229)
PA *rir “wave”; PN *la=t “id.”
PA *say L “flock”; PN *c’ok “flock, herd, group”
PA *tEr=kE HL “jump”; PN *car=k= “id.”
PA *tOO “lake”; PN *tu “id.”
PA *ya H “dry land”; PN *co “the beach near the water, covered with sand and pebbles”

I would also like to propose three additional forms, two taken from (Austerlitz 1980, p. 85), and the latter one from (Austerlitz 1987, p. 24):

PA *Ok H “nape of neck”; PN *?ogV=di (AG/SG *og|ri*) “back of head, nape”
PA *dE=*kut* LL “neck”, PN *ku=ddi (AG *kut+*, SG *kuti*) “hole, opening”
PA *koy L “urine”; PN *ki “id.”

This provides yet another competing etymology, the latter of these also having been compared with PK *kut L “hole”.

3.0 Proto-Ainu and Austro-Tai

Although, as stated above, I believe Ainu to be ultimately related to the entire Austric phylum, much more has appeared in print about Ainu’s relationship to Austroasiatic specifically than to any other branch. I therefore decided to include a group of potential cognates with some of the constituents of Austro-Tai: Proto-Austronesian (David Zorc’s “A glossary of Austronesian reconstructions” in Tryon, 1995), Proto-Tai (Li 1977 and Luo 1997), Proto-Kam-Sui (Thurgood 1988), Proto-Hlai (Matisoff 1988), and Proto-Buyang (Li and Zhou, 1998). The following examples are necessarily preliminary, since correspondences have yet to be worked out within Kadai itself, let alone between Proto-Kadai and Proto-Austronesian within Austric; although Benedict (Benedict 1975) does postulate Austro-Tai proto-forms, I prefer to cite forms at lower levels since many of the materials with which he worked at that time are obsolete to a greater or lesser extent, and he did not have access at the time to any of the Kadaic proto-languages which have subsequently been reconstructed (5).

I should give a brief explanation of the "mechanics", laid out fully in (Benedict 1975), which underpin the relationship between PAN and the Kadai languages. The principle idea is that PAN preserves a multi-syllabic structure originally present in Proto-Austro-Tai, which collapsed in the Kadai languages of the mainland when they underwent the pan-areal shift towards monosyllabism. The etymon for "shoulder" can be used to illustrate this process:

"shoulder" PAN *qa**ba**RaH; PT *?baH^{B1}; PH *v-; PB *?b-

The PT core syllable is derived from the syllable in the PAN form which bore the accent. The other syllables are not just deleted *en totale*, however; the PT glottalized *?b- is a regular indication of a former preceding consonant (in this case, a process something like [qab-] > [qba-] > [?ba-] is thought to have taken place), and the uvular [R] at the right syllable boundary has been preserved in the tone, which I show in my modification of the PT reconstruction as [H]. Note that the PH initial shows a distinct but relatable reflex.

Implicit in the last example (Li reconstructs the PT form with a short [a], but note that modern languages have a long [aa]) and more obvious in etyma containing differing vowels is a process which Benedict coined "vocalic transfer", where the core of the PT (and other Kadai) syllable absorbs both featural information and length from the vowels on its edge(s), as in the word for "moon":

"moon" PAN *bulaN; PT *?b[l/r]+en^{A1}; PKS *n+aan^{1}; PH *n^{y}-, PB *?d-

What has occurred vocalically in PT and PKS is that the original vowels still separated in PAN have been merged sequentially within a single syllable, resulting in an apparent loss of the feature [+round] in the first vowel and a raising of the second vowel in the PT form (both of these changes are assimilatory and unsurprising). This set also serves to illustrate another characteristic of the Kadai languages, namely that they did not use identical strategies in collapsing polysyllabic forms into monosyllabic forms -- note that the onset of every Kadai proto-language differs from that of the others, yet all are conceivable derivations when compared to the PAN form. This obviously complicates comparisons, but does not make them impossible.

When comparing the PA forms with the PAN ones below, we see that a certain amount of syllable reduction has taken place in the former, although not to the same extent as in Kadai where virtually all forms have been rendered monosyllabic. The stressed syllable of the PAN form, if it is known, is normally retained in Ainu, although there are a few exceptions in the examples below.

3.1 *Lexical Correspondences Between Proto-Ainu and Austro-Tai Languages*

The following table provides general correspondences between consonants in Proto-Ainu and the constituents of Austro-Tai referred to in this paper. Vocalic correspondences will not be given since they are in general more problematic, but nevertheless correlate fairly well in many cases below. There are a select number of correspondences (primarily consonant clusters) which will not be listed in the table for the sake of simplicity, but will be discussed in greater detail in section 3.2.

PA	PAN	PT	PKS	PH	PB
*p	*p	*p, v	*p, pw	*f-	
*-p		*-m	*-m		
*m	*m	*m			
*t	*t, d$_3$, j	*t, t^{h} , ?d	*t, ?n		
*d	*-t-	*d			
*s	*s, C				
*0	*S-	*s-			
*-s	*-S, -t	*-t			
*n	*n, nl-	*hn	*m=l, ?n		
*hr-	*(bV)l-				
*-y, -0	*-y	*-i	*-i		
*k	*q, k	*k, k^{h}, x	*k, kw	*k^{h}-	
*g, [s/g/h]	*-q-, -k-	*k, x, g	*k		*G-
*-0	*-ng, -q	*-ng, -p, -k	*-p, -k		

I mark the comparisons in the list below which have already been suggested by Vovin for PAN (1993, p. 163) with a (V):

PA *agi LL "arrow", *E=ak LH "to shoot"; PAN *panaq "bow & arrow; to shoot an arrow"
PA *unar(=)pE LHL "aunt"; PAN *ina "mother, mother's sister [reference]"
PA *kupa LH "to bite"; PT *xep^{D1S} "id."; PKS *krip^{7} "id."
PA *kEqu LL "bone"; PHF CuqelaN "id."; PT *?dl/ruok^{D1L} "id."; PKS *tlaak^{7} "id."
PA *kuu LH "bow"; PT *k[o]ng^{A1} "id."
PA *itanki LHL "bowl"; PT t^{h}[e]ng[?]$^{A1/C1}$
PA *nOqi=pE HLL "brain"; PT *ng^{w}[ui]^{A2} "marrow"
PA *pEr= L "to break in two"; PT *prek^{D1L} "to break"; PKS *praak^{7} "id."
PA *ak L "brother (younger)"; PMP *aka "older sibling"
PA *kuhda LH "cane"; PT *d[au]?^{C2} "cane, stick (to lean on)"
PA *nOt H "chin, jaw"; PT *hn[ua]t^{D1L} "beard"; PKS *m=luut^{8} "id."
PA *su(=)kE LH "to cook"; PAN *na=suk "id."
PA *[d/r]Ey= H "to crawl, creep"; PT *t[ei]H^{B1} "id."; PKS *hlaaiH^{5} "id."
PA *tis "to cry, weep"; PAN ***C**angis "id."; PT *t^{h}r[ei]?C1 "id."; PKS *n^{y}e?3 "id."; PH *nl- "id."
PA *day H "to die"; PAN *ma**C**ey "id."; PT *pl[ai]^{A1} "id."; PKS *pyai^{1} "id."; PH *hl- "id."; PB *pl- "id." (V)
PA *[s/g/h]ii "dung"; PAN ***C**aqi "excrement"; PT *xei?^{C1} "id."; PKS *ke?^{4} "id."; PB *G- "id."

PA *kisAr LL “ear”; PAN ***Ca**linga “id.” (7); PT *xr+u^{A1} “id.”; PKS *k^{h}ra^{1} “id.”; PH *z- “id.”; PB *z- “id.”

PA *agu= LH “to enter”; PT *xeu?^{C1} “id.”

PA *rAr L “eyebrow”; PT *vr[eu]A2 “id.”

PA *nAn L “face”; PT *hna?^{C1} “id.”; PKS *?na?^{3} “face, front”

PA *apE LH “fire”; PAN *Sa**puy** “id.”; PT *vei^{A2} “id.”; PKS pwai^{1} “id.”; PH *f- “id.” (V)

PA *num L “fruit, berry”; PT *hn[i]m[?]$^{A1/C1}$ “k.o. wild fruit”

PA *pay=i LH “to go (pl.)”; PT *pey^{A1} “id.”; PKS *paai^{1} “id.”; PH *f- “id.”

PA *Eka[s/g/h]i LLH “grandfather”; PAN *aki “id.”

PA *Etop LL “(head) hair”; PT *p^{h}l/rom ^{A1} “id.”; PKS *pram^{1} “id.”

PA *sa H “head”; PMP *ma**Ca** “eye”; PT *pra^{A1} “id.”; PKS *t^{h}la^{1} “id.”; PH *ts^{h}- “id.”

PA *ki(=)raqu LLH “horn”; (PHF *uReng “id.” ?); PT *k^{h}[eu]^{A1} “id.”; PKS *m=kwaau^{1} “id.”; PB *kr- “id.”

PA *a(n)=, *ku= L “I”; PAN ***aku** “I, EGO”; PT *k[eu]^{A1} “id.” (V)

PA *kOkka HL “knee”; PMP *bu**kuH** “joint: ankle, knee, wrist”; PT *xouH^{B1} “id.”

PA *hrA= L “leaf”; PHN *bu**lung** “id.”; PT *?be+^{A1} “id.”; PKS *pwaH^{5} “id.”

PA *=ka L “leg”? (cf. PA “knee”); PAN *qaqai “foot, leg”; PT *k^{h}[a]^{A1} “leg, thigh”; PKS *kwa^{1} “id.”

PA *[d/r]a H “liver; PAN *qa**Cey** “id.”; PT *tep^{D1S} “id.”; PKS *tap^{7} “id.”

PA *Okkay(O) HLL “male”; PAN *ma=Ruqanay “id.”

PA *kam L “meat”; PHF ***qa**yam “domestic animal: dog, chicken”; PT *keiH^{B1} “chicken”; PKS *kaaiH^{5} “id.”; PH *k^{h}- “id.”

PA *n[O/a]rn[Oa] “mother”; PAN *ina “id.” (cf. PHF ***ina?** “mother [address]” for accent).

PA *prAA= L “mouth”; PAN *baq=baq “id.”; PT *pak^{D1L} “id.”; PKS *paak^{7} “id.”

PA *karus LH “mushroom”; PT *hret^{D1S} “id.”

PA *gop=nE HL “narrow”; PT *gep^{D2S} “id.”

PA *kem L “needle”; PT *k^{h}yem^{A1} “id.”

PA *Etu LL “nose”; PAN ***i=jung** “id.”; PT *?d[e]ng^{A1} “id.”; PKS *?nang^{1} “nose, face” (V)

PA *guskO HL “old”; PAN *ma=tu**qaS** “old (person), elder(s)”; PT *keuH^{B1} “old, ancient”

PA *[d/r]is= “to pick, pluck”; PT *pl[i]t^{D1S} “id.”

PA *nay “river, stream”; PHN *sungay “id.”

PA *truu “road”; PT *dl/r[u]ngH^{B2} “lane, valley”

PA *[d/r]uy=[d/r]uy HL “to rub, massage”; PT *Gl/r[u]$^{A2?}$ “to rub”

PA *sEy L “shell(fish)”; PT *sroi^{A1} “id.”; PKS *k^{h}ruui^{1} “id.”

PA *nis H “sky, cloud”; PAN ***la**ngit “sky, heaven”

PA *paa HL “smoke, steam”; PAN *CapaH “to smoke fish, jerk meat”

PA *hdOO “span between thumb and middle finger”; PT *gl[+]p^{D2L} “id.”

PA *top(=)sE HL “to spit”; PT *t^{h}[o]mH^{B1} “id.”

PA *tO= L "that"; PMP *i=**tu** "that (near speaker)"
PA *E= L "thou"; PAN *i=ka**Su** "id." (cf. PHF i=**Su** "id."); PT *su^{A1} "you"
PA *dE= "three"; PAN *te**lu** (cf. PHF *ta=telu "id." for possible intervocalic voicing in the PA form) (V)
PA *ko:t= L "tie (it) to"; PMP *hi=ket "id."; PT *x[o]t^{D1L} "knot"
PA *ima(=)k LL "tooth"; PAN ***ni**pen (PMP ***ngi**pen "id."); PT *v[e]n^{A2} "id."; PKS *pywan^{1} "id."; PH *f- "id."
PA *tuu= "two"; PAN d_3u**Sa** "id." (V)
PA *k[E/e]qu "uncle"; PT *kh[u]?^{C1} "uncle, mother's younger brother"
PA *pOk L "vagina"; PAN *puki? "id."
PA *atu LH "to vomit"; PAN *m=utaq "id."; PT *rwak^{D2L} "id."; PKS *trwak^{7} "id."
PA *in[a] "which"; PHF *i=**nu** "where"
PA *pir L "wound"; PT *pl[iau]?^{C1} "scar, wound"

One comparison may also be offered with the Formosan language Atayal:

PA *[s/g/h]ik "eye"; Atayal *loziq* "id."

3.2 *Consonant Clusters*

It has been suggested that there are a certain number of consonant clusters consisting of an obstruent plus a liquid ([r] or [l]) in Austro-Tai. These normally occur in PAN in the singular segment *C, but are represented more faithfully in the reconstructions of the Kadai languages. Ainu either preserves these clusters in their entirety, or otherwise displays specific reflexes according to whether the cluster was an [r] cluster or an [l] cluster. Note that there is some degree of disagreement between PT and PKS in terms of distinguishing the two kinds of clusters, with the PA forms agreeing with PT more than the PKS ones; in many cases where one proto-language shows a coronal-liquid cluster and another shows either a labial-liquid or dorsal-liquid cluster, assimilation may be assumed to have taken place in the language with the coronal cluster.

3.2.1 *[Cr] Clusters*

(4) PA *s- = PAN *(-)C- = PT *[p/x/s]r- = PKS *[t/k]^{h}L- = PH *[ts^{h}/z]- = PB *z-

PA *sa H "head"; PMP *ma**Ca** "eye"; PT *pra^{A1} "id."; PKS *t^{h}la^{1} "id."; PH *ts^{h}- "id."
PA *kisAr LL "ear"; PAN ***Ca**linga "id." (7); PT *xr+u^{A1} "id."; PKS *khra^{1} "id."; PH *z- "id."; PB *z- "id."
PA *sEy L "shell(fish)"; PT *sroi^{A1} "id."; PKS *k^{h}ruui^{1} "id."

(5) PA *k- = PAN *-k- = PT *x- = PKS *kr- = PB *kr-

PA *kOkka HL "knee"; PMP ***bukuH** "joint: ankle, knee, wrist"; PT *xouH^{B1} "id."

PA *kupa LH “to bite”; PT *xep^{D1S} “id.”; PKS *krip^{7} “id.”

(6) PA *(-)t- = PAN *C- = PT *[t/p]^{h}r- = PKS *pr-

PA *tis “to cry, weep”; PAN ***C**angis “id.”; PT *t^{h}r[ei]?C1 “id.”; PKS *n^{y}e?3 “id.”;
PH *nl- “id.”
PA *Etop LL “(head) hair”; PT *p^{h}l/rom ^{A1} “id.”; PKS *pram^{1} “id.”

The correspondences of the next three examples only occur once each:

PA *truu “road”; PT *dl/rungH^{B2} “valley, lane”
PA *atu LH “to vomit”; PAN *m=utaq “id.”; PT *rwak^{D2L} “id.”; PKS *trwak^{7} “id.”
PA *rAr L “eyebrow”; PT *vreu^{A2} “id.”

The final example is irregular, and it is difficult to explain why the Kadai forms have not retained any trace of the cluster:

PA *prAA= L “mouth” ; PAN *baq=baq “id.”; PT *pak^{D1L} “id.”; PKS *paak^{7} “id.”

3.2.2 *[Cl] Clusters*

(7) PA *d- = PAN *C- = PT *pl- = PKS *py- = PH *hl- = PB *pl-

PA *day H “to die”; PAN *ma(=)**C**ey “id.”; PT *plai^{A1} “id.”; PKS *pyai^{1} “id.”,
PH *hl- “id.”; PB *pl- “id.”

(8) PA *d/r- = PT *[p/G]l-

PA *[d/r]is= “to pick, pluck”; PT *pl[i]t^{D1S} “id.”
PA *[d/r]uy=[d/r]uy HL “to rub gently, soothe”; PT *Gl/r[u]$^{A2?}$ “to rub”

The last sets of correspondences have only one example each:

PA *[d/r]Ey= LH “to crawl”; PT *t[ei]H^{B1} “id.”; PKS *hlaai?^{5} “id.”
PA *[d/r]a H “liver”; PAN *qa**C**ey “id.”; PT *tep^{D1S} “id.”; PKS *tap^{7} “id.”

Finally, there are three examples in which it appears that PA has preserved an original vowel which has been deleted in favor of forming a cluster elsewhere:

PA *ki(=)raqu LLH “horn”; (PAN *uReng “id.”), PT *kheu^{A1} “id.”,
PKS *m-kwaaw^{1} “id.”; PB *kr- “id.”
PA *pir L “wound”; PT *pl[iau]?^{C1} “id.”
PA *pEr= L “to break (it) in two”; PT *prek^{D1L} “to break”, PKS *praak^{7} “id.”

3.3 *The Dorsal Nasal*

PA did not have a dorsal nasal segment in its inventory. In comparing it with Austro-Tai forms, we see that in initial position, the dorsal nasal was re-articulated as a dental nasal (except in the case of "tooth"); in final position, it was lost.

3.3.1 *The dorsal nasal in initial position*

PA *nOqi=pE HLL "brain"; PT *ng[ui]^{A2} "marrow"
PA *nis H "sky"; PAN ***la**ngit "id."
PA *nay L "river, stream"; PAN *sungay "id."
PA *ima(=)k LL "tooth"; PMP ***ngi**pen "id.", PT *v[e]n^{A2} "id.", PKS *pywan^{1} "id."; PH *f- "id." (It is possible in this last item that the feature [nasal] has for some reason attached to the following stop in the PA form).

3.3.2*The dorsal nasal in final position*

PA *kuu LH "bow"; PT *k[o]ng^{A1} "id."
PA *truu "road"; PT *dl/rungH^{B2} "valley, lane"
PA *Etu LL "nose"; PAN *i=**jung** "id."; PT *?d[e]ng^{A1} "id."; PKS *?nang^{1} "nose, face"
PA *hrA= H "leaf"; PAN *bu**lung** "id."; (PT *?be+^{A1} "id.", PKS *pwaH^{5} "id.", PH *b- "id.")
PA *ki(=)ra[q]u LLH "horn"; (PAN *uReng "id."), PT *kheu "id.", PKS *m-kwaaw "id."; PB *kr- "id."

3.4 *Final Stops*

3.4.1 *Coronal Stops*

PA lenited final coronal obstruents to [s] when they followed a [+hi] vowel, but maintained them otherwise:

PA *nis H "sky"; PAN ***la**ngit "id."
PA *[d/r]is= "to pick, pluck"; PT *pl[i]t^{D1S} "id."
PA *karus LH "mushroom"; PT *hret^{D1S} "id."
PA *nOt H "jaw, chin"; PT *hn[ua]t^{D1L} "beard", PKS *m-luut^{8} "id."
PA *ko:t= "to tie (it) to"; PAN *hi=ket "id."; PT *x[o]t^{D1L} "knot"

3.4.2 *Labial and Dorsal Stops*

There is some evidence that PA preserved labial and dorsal stops when they were intervocalic in either PA or another language, but deleted them at the end of the word:

PA *[d/r]a H “liver; PAN *qa**Cey** “id.”; PT *tep^{D1S} “id.”; PKS *tap^{7} “id.”
PA *hdOO “span between thumb and middle finger”; PT *gl[+]p^{D2L} “id.”
PA *prAA= L “mouth”; PAN *baq=baq “id.”; PT *pak^{D1L} “id.”; PKS *paak^{7} “id.”
PA *atu LH “to vomit”; PAN *m=utaq “id.”; PT *ruak^{D2L} “id.”; PKS *trwak^{7} “id.”

but:

PA *kupa LH “to bite”; PT *xep^{D1S} “id.”; PKS *krip^{7} “id.”
PA *gop=nE HL “narrow”; PT *gep^{D2S} “id.”
PA *agi LL “arrow”, *E=ak LH “to shoot”; PAN *panaq “bow & arrow; to shoot an
arrow” (PA “to shoot” is a counter-example).
PA *ak L “brother (younger)”; PMP *aka “older sibling”
PA *su(=)kE LH “to cook”; PAN *na=suk “id.”
PA *Eka[s/g/h]i LLH “grandfather”; PAN *aki “id.”
PA *pOk L “vagina”; PAN *puki? “id.”

There are two PA-PT forms where the PA form has a final *-p where the PT form has a final *-m coupled with an aspirated initial:

PA *Etop LL “(head) hair”; PT *p^{h}l/rom ^{A1} “id.”; PKS *pram^{1} “id.”
PA *top(=)sE HL “to spit”; PT *t^{h}[o]mH^{B1} “id.”

3.5 *Proto-Ainu *A and *r*

There are two forms where PA *-r following PA *A is not represented in PT, PKS, and possibly PAN:

PA *kisAr LL “ear”; PAN ***Ca**linga “id.”; PT *xr+u^{A1} “id.”; PKS *k^{h}ra^{1} “id.”;
PH *z- “id.”; PB *z- “id.”
PA *rAr L “eyebrow”; PT *vr[eu]A2 “id.”

This is interestingly the same vocalic environment in which PA *r is missing corresponding segments in PT and PKS as well as PAN, but in these it precedes *A:

PA *hrA= L “leaf”; PHN *bu**lung** “id.”; PT *?be+^{A1} “id.”; PKS *pwaH^{5} “id.”
PA *prAA= L “mouth”; PAN *baq=baq “id.”; PT *pak^{D1L} “id.”; PKS *paak^{7} “id.”

3.6 *Proto-Austronesian *S*

Finally, PA did not preserve PAN *S except perhaps in final position. This fact is particularly important when explaining the PA second-person pronoun:

PA *apE LH “fire”; PAN *Sa**puy** “id.”; PT *vei^{A2} “id.”; PKS pwai^{1} “id.”;
PH *f- “id.” (V)
PA *E= L “thou”; PAN *i=ka**Su** “id.” (cf. PHF i=**Su** “id.”); PT *su^{A1} “you”

PA *tuu= “two”; PAN d$_3$u**Sa** “id.” (V)

There is one apparent counter-example, but it is the only one in obviously final position in PAN:

PA *guskO HL “old”; PAN *ma=tu**qaS** “old (person), elder(s)”;
PT *keuH^{B1} “old, ancient”

4.0 Conclusion

The evidence given above, although preliminary in many ways, provides good reason to suspect the original Southeast Asian connections of the Ainu. It also suggests strongly that the Ainu came upon the speakers of Proto-Korean on their way to Japan through the Korean peninsula. Upon reaching their present homeland, the Ainu proceeded to have intimate contact with the Nivkh. One of the current difficulties with a select number of PA etymologies is not that they have no apparent cognates in outside languages, but that they have too many:

PA *agi LL “arrow”; PN *k’i “crossbow”; PAN *panaq “bow & arrow; to shoot an arrow”
PA *ima(=)k LL “tooth”; PN *em=s “molar tooth”; PAN ***ni**pen (PMP ***ngi**pen “id.”); PT *v[e]n^{A2} “id.”; PKS *pywan^{1} “id.”; PH *f- “id.”
PA *nay “stream, river”; PK *naai “river”; PHN *sungay “id.”
PA *nAn L “face”; PK *na HL “id.”; PN *ngen^{y}=k “id.”; PT *hna?^{C1} “id.”; PKS *?na?^{3} “face, front”
PA *nii “tooth”; PK *ni H “tooth”; PN *nge=ks “id.”
PA *nuu= HL “eye”; PK *nun H “eye”; PN *n^{y}a=k “id.” (cf. G n^{y}u “to see”)
PA *top(=)sE HL “to spit”; PN *e=tVp=ai “id.”; PT *t^{h}[o]mH^{B1} “id.”
PA *tuu= “two”; PK *tuur^{h} “two”; PAN d$_3$u**Sa** “id.”

It is obvious that not everything listed above can be cognate with the PA forms, and it will require careful scrutiny to discover which are connected and which are merely look-alikes. At least in the case of “two”, it is probable that the PA and PAN forms are related, but the initial stop may have undergone analogical change under the influence of the PK form. Although I have not listed it explicitly, it is also possible that the PAN/PMP forms for “tooth” could be compared with PA *nii as well as *ima(=)k LL, which would still make sense in terms of the stress patterns in the former (8).

Endnotes

(1) Greenberg (p.c. 12/98) believes that he has found further evidence for Ainu as a Eurasiatic language, “...namely the existence of _k_ “dual” and _t_ plural [cf. PA *ti= “we”, *Eti= “you” -P.N.], particularly prominent in Uralic and Eskimo.” Although I have no reason to believe that Proto-Ainu speakers came into contact with speakers of Uralic or Eskimo languages, it may be the case that it picked up these markers from a language they have come into contact with, as seems to be the case with other parts of their morphology (see Vovin 1993, pp. 156-7, 160 for discussion and specific examples from Proto-Nivkh). The full import of Greenberg’s claim must for now remain an open question.

(2) My data for Proto-Korean has been taken from Sergei Starostin's web-site at <starling.rinet.ru>. Since his site does not currently make use of an IPA font, I wish to explain briefly how I interpret a small set of symbols which are not completely transparent without a key. I understand his [@] and [y] to indicate a central vowel (schwa) and a high, mid- unrounded vowel respectively, and will use [e] for the former but leave the latter in this paper. His [a>] is interpreted here as a reduced low vowel, and for this I will use [a]. His [c^], a palatal affricate, I will represent with a [C], his palatal glide [j] with a [y], and his symbol for the velar nasal, [nl], I will write [ng]. Finally, instead of using slashes to represent high and low pitch, I will adopt Vovin's convention of listing them (H, L) after the lexical entry. For the Proto-Ainu, the one modification I will make is to use an [+] in place of Vovin's "umlauted" [i] with a double-dot.

(3) What is surprising about this group of doubled forms is that so many of them occur in areas generally considered to be core vocabulary, particularly body parts. I do not have a ready explanation for why this might have been the case, but the fact remains within the reconstruction that there are, for example, three forms for "eye", two for "head", etc., and it does not seem unrealistic to expect that one form is native and that the other is borrowed.

(4) The absence of a final [n] in the PA form may be due to its membership as the first member of the compound "tear (n.)", the second member of which is PA *pE H "sap, water".

(5) In the following data, I will cite only the Proto-Hlai and Proto-Bulang initials since they are the only parts which have been reconstructed thus far. I will cite full Proto-Tai forms whenever possible, and have followed the formulas presented by Li in (Li 1977) for reconstructing Proto-Tai initials and vocalism; I have also made the few corrections to (Li 1977) suggested in (Luo 1997, p. 315). When citing the Proto-Tai and Proto-Kam-Sui forms, I will use a final [H] when the proto-tone indicates final aspiration, and a final [?] when it indicates final glottalization. If the accented syllable of the Proto-Austronesian form is known, I will indicate it by putting the syllable in bold-face. I should also note that in the forms in which Vovin reconstructs PA *q to separate a diphthong, there seems to be a general tendency for a diphthong to be represented in other languages.

(6) In some cases, a PAN form is not available and I will indicate the highest level of reconstruction possible: PHF (Proto-Hespero-Formosan), PMP (Proto-Malayo-Polynesian), PHN (Proto-Hesperonesian).

(7) This is glossed in (Zorc, 1995) as "eat", but I believe it to be a misprint.

(8) I would like to thank Jane Hill, who offered constructive criticism on earlier drafts of this paper.

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Review of James Patrie, *The Genetic Relationship of the Ainu Language*. Honolulu: The University Press of Hawaii, 1982. (Oceanic Linguistics Special Publication No. 17.) Pp. xi + 174.

by John D. Bengtson

[This review, written long after publication of the book in question, was originally part of a letter written in October, 1994 to Joseph H. Greenberg. It is thus not a full review, but concentrates on an analysis of Patrie's "attempt to show ... that Ainu is an Altaic language" (p. 12). Proto-Ainu (PAi) forms are cited from Vovin, 1993; and Proto-Altaic (PAlt) from Starostin, 1991.]

Out of some 300 lexical comparisons in Patrie's book, only about 67 involve basic meanings on the 100-word lexicostatistical list. Some of the remaining etymologies reflect what Paul K. Benedict called "tea, cards, and glue" words, i.e., cultural words that pass easily from one culture to another. Even within the basic category, many comparisons are more or less questionable. For example, Ainu *mim* 'flesh of fish' is compared with Altaic words that reflect both PAlt **mik‘V* 'flesh, limb' and **māni* 'self, body'. This is one of several cases where Patrie compares one Ainu word with two or more distinct Altaic roots. (Cf. rather Austric, e.g., PKam-Sui **mum* 'fish', Lakkia *mom* 'flesh'.) [And cf. PIndo-European **mēmso-* 'flesh'. RWW, Ed.]

For another example, Ainu *unci* 'fire' (PAi **unti*) is compared by Patrie with three separate etyma: (a) Korean *pul* 'fire' (PAlt **p‘örV*), (b) Mongolian *oči* 'spark' (PAlt **ōt‘V)*, and (c) Japanese *fuji* (the volcano)! I find the Austric comparison (e.g., Bahnaric **ʔuñ,* Katuic **ʔu:jh* 'fire', etc.) much more plausible than any of Patrie's comparisons. (Ainu *una* 'ashes' [PAi **uu[y]na*] also seems to belong here, rather than with PAlt **pülńe*, as Patrie proposes.) I also find the other Ainu word for 'fire', *ape ~ apoi* (PAi **apE <* **apOy*), straightforwardly comparable with Austric (e.g., PAustronesian [PAN] **Hapuy*, PKam-Sui **pwai*, Nihali *āpo* 'fire', etc.).

Patrie compares Ainu *wor* 'water' (not in Vovin) with Korean *mul* (PAlt **mū̄ri*), but comparison with PAN **wahiR* is more transparent. Another Ainu word for 'water', *nam* (properly 'fresh or cool water') is compared by Patrie with Japanese *nama,* Korean *nal* 'raw', but again the Austric parallels (e.g., Tai **nram,* PKam-Sui **nam,* PAN **Danum* 'water') are more straightforward.

Patrie compares Ainu *toy* 'earth' (PAi **tOy* 'earth, soil, ground, land') with Japanese *tuti (tsuchi)* 'earth' (from PAlt **t‘owVŕV,* according to Starostin), but cf. rather the more likely comparison with Austric, e.g. PMon **tiiʔ* 'soil, earth, ground', etc.

Patrie compares Ainu *pa* 'year, age' (PAi **paa*) with PAlt **ponV* 'year, season', but there is no trace of a nasal in Ainu, and comparison with Austric (e.g., Tai **pi,* PKam-Sui **be* 'year') seems more likely.

Patrie compares Ainu *rit* 'sinew, tendons' (also 'vein, root') with Japanese *hiji* 'elbow, arm' (which actually calls for a protoform with initial **p-*) and Korean *ppi-*(da) 'to dislocate' (rightly queried [??] by Patrie). Vovin suggests more plausible Austric parallels, e.g.: PViet-Muong **relh* 'root', Khmer *ris*, etc.

Patrie compares Ainu *retar* 'white' (PAi **dE(=)tar*) with Korean *pjët* 'sunshine', etc. This is phonetically and semantically difficult, while the Austric parallels (e.g., Munda Gadaba *ta-taar* 'white', etc.; Ainu *tetar* 'white' was recorded by Klaproth in 1823) are far more transparent.

Patrie compares Ainu *to* 'breast' (PAi **tOO[C]*) with Japanese *titi* and Korean *cëc*, but Starostin (1991) shows that the latter two come from PAlt **č‘ajVǯV* 'breast'. Then on another page Patrie compares Ainu *to* with Mongolian *deleŋ* 'udder', which is even more implausible, phonetically. The Austric alternative of the type **toh* 'breast' (Stieng *toh*; Tai **tu,* etc.) is more satisfactory than either.

Patrie compares Ainu *sik* 'eye' (PAi **sik* [**gik* or **hik* are also possible, according to Vovin]) with PAlt **sïg-* 'to peep', but Nihali not only has *jiki* 'eye' (with exact correspondence of meaning), but *jiki-kap-ri* 'eyelid' (or 'eyebrow'), a compound corresponding in both form and meaning to Ainu *sik-kap* 'eyelid'. (*kap* in both languages represents Austric **kap* ~ **kop* 'skin' [see below]. Other Ainu-Nihali parallels are listed in my article in *Mother Tongue* II: 51-55.)

One could go on and on with such cases. In most of them, as we have seen, the suggested Austric parallels are phonetically and semantically more plausible than Patrie's Altaic comparisons. It must, however, be admitted that there are a few good-looking Ainu-Altaic parallels in Patrie's book. For example, Ainu *numa* 'hair' is compared with PAlt **nuŋV* 'wool, down', but even here the Austric parallels (e.g., Li **nom* 'head hair') are phonetically and semantically closer. Ainu *pa(ke)* (PAi **pa*) is plausibly compared with PAlt **pek‘i* 'brain, head', but the Austric alternative (e.g., Munda **bɔk,* PAN **buʔuk,* etc., 'head') is just as good.

In some cases parallels from Altaic and Austric (and other families) look almost equally plausible. Ainu *tu* 'two' (PAi **tuu=*) is compared by Patrie with PAlt **diüwV* , but cf. also PAN **Duwa* and PIndo-European (PIE*)* **due-*. Ainu *para* 'palm (of hand)' is compared by Patrie with PAlt **p‘aliŋa*; cf. also PIE **pl̥H-* (Greek παλάμη, etc.); PAN **palaj* 'palm', PMiao-Yao **pra* 'five' (< *'hand'), etc. Ainu *kap* 'skin, bark, fur' (PAi **kAp*) is compared with PAlt **k‘āp‘V* 'skin, bark' (so Patrie), or equally with Austric **kap* ~ **kop* 'skin, bark', or Dene-Caucasian (e.g., Burushaski *gap* 'hide', PSino-Tibetan **qruap* 'scale, shell') . These are of course examples of widely spread (if not global) etymologies, and not useful for classification, unless a phonetic or morphological feature of the word is distinctive. (For example, the Ainu word for 'palm' is slightly closer, phonetically, to the Austronesian form than it is to the Altaic form.)

Patrie puts up a valiant effort, but ultimately it fails to convince me of the Altaic affinity of Ainu. The few basic etymologies usually crumble under examination, or represent words common to several macro-families (Ainu *tu, para, kap*, in the preceding paragraph), and what is left is paltry compared with the many robust parallels, including pronouns and basic lexicon, between Ainu and Austric. (See, e.g., Gjerdman 1926; Sternberg 1929; Murayama 1992, 1993, 1995; Vovin 1992, 1993; Bengtson & Blažek [forthcoming]; Bengtson 1996; Blažek 1996; Itabashi 1998; Norquest 1998; Sidwell

1998). Ainu words that are clearly of Altaic origin are virtually all cultural ("tea, cards, and glue"), and have been borrowed from Japanese or other Altaic languages. (Note that Ainu was formerly spoken also on the Asian mainland, on the Sakhalin peninsula.)

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Epilog: Why Do the Ainu Look "Caucasoid"?

John D. Bengtson

While editing this section of the journal, a colleague asked "If the Ainu come from Southeast Asia, why do they look so Caucasoid?"

It's a fair question. As Leo (Lev) Sternberg (1929) observed,

> The first thing that struck [the scientists of Europe] and surrounded the Ainu with veil of mysteriousness, was their exceeding hairiness and most especially that of the face. ... It was therefore but natural for the Europeans to come to the conclusion, that the Ainu were a mysterious fragment of their own race. Even now one frequently hears ... that the Ainu have a strange resemblance to the Russian peasants ...

In my own examination of pictures of Ainu, I have seen many that look totally European. With a change of clothes, some of them could walk unnoticed through any American country-western tavern.

The paradox is that no physical anthropologist seems to support the idea that Ainu are in any way connected with Europeans, or even with Asiatic Caucasoids (from Istanbul to Calcutta). Different branches of physical anthropology seem not to agree to which group of Asians the Ainu *are* most closely related. According to the genetic hierarchy of Cavalli-Sforza, et al. (e.g., 1988), the Ainu are part of a "Northeast Asian" genetic stock, along with the Japanese, Koreans, North Chinese, and others usually called Mongoloid. However, according to dental anthropology,

> ... the Polynesians, the Jomonese and the Ainu cluster with the southeast Asians as Sundadonts, whereas the Japanese consistently join the northeast Asians and the Native American populations as Sinodonts (Turner 1989: 90).

Genetic data seem to support the northern (linguistically: Eurasiatic/Nostratic) origin of the Ainu, while dental data support the southern (linguistically: Austric) hypothesis. From my own observations of Ainu physiognomy, I tend to agree with the conclusion of Sternberg (1929: 798):

> The physical type of the Ainu may be classed as a variety of that Australoid longheaded, bearded race, representatives of which we find equally in Australia, South India and Western Oceania. ... during a stay of many centuries among new geographic and climatic surroundings, they were bound to ... undergo changes in their physical type.

Among the changes alluded to by Sternberg was the lightening of skin tone, a result of environmentally-induced genetic selection, parallel to the similar processes observed elsewhere in the world, most markedly in the blondism of northern Europe. But blondism is not restricted to the Caucasoid area, and is clearly endemic in the Australoid subspecies, for example, some Australian aborigines have blond children. Many Polynesians and other Austronesians (e.g., Bataks of Sumatra) exhibit various lighter skin tones, ranging from a light brown, through the "Mediterranean brunet white" shade, and even, in some individuals, a central or northern European-like "pinkish-white" skin tone.

The Ainu seem to represent an Austric extreme in this regard, though it is no more extreme than that of their neighbors (e.g., Japanese and Koreans), who may also have the pinkish-white skin.

The Ainu look "Caucasoid" for the same reason that some New Guinea highlanders look "Armenoid" (the long-nosed, convex-faced type common on Ararat and other mountains of the Middle East), and that dolphins (though mammals) are shaped like fish: *environmental adaptation and convergence*. Both the Ainu and Europeans have undergone similar environmental influences, along the 45th parallel, with less solar radiation than in the tropics resulting in selection for light skin color. In addition, both peoples (Caucasoid and Ainu) have retained certain archaic characteristics, notably beard and body hair, and angular ("rugged") facial features. Thus they look alike through convergence, though their origins were quite different.

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APOPHONY IN PROTO-EDOID

Roger W. Wescott

In his compendious volume *Comparative Edoid*,[1] Ben Elugbe lists 207 lexemes reconstructed by comparison of 21 Edoid languages, spoken in south-central Nigeria and attributed to a postulated parent language called Proto-Edoid. Proto-Edoid, as reconstructed by Elugbe, had 43 segmental phonemes: 5 tense peripheral vowels and 5 lax centralized vowels; 12 fortis stops and nasals with 13 corresponding lenis consonants;[2] 2 voiced implosive stops; 2 labio-dental fricatives; and 4 approximants (none of which was rhotic).

Elugbe divides the Edoid family into four branches: North Western, including Ukue; North Central, including Edo (alias Bini); South Western, including Urhobo; and Delta, including Degema. The only one of these branches for which glottochronological data are available is South Western, which may be inferred to have constituted a single language around 500 A.D.[3] My estimate is that the four branches converge as Proto-Edoid around 500 B.C. In terms, then, of both diversity and antiquity, the Edoid languages of Africa are roughly comparable to the Germanic languages of Europe.

Of the 207 Proto-Edoid lexemes listed by Elugbe, 90-some belong in categories -- such as pronouns, kin-terms, and body-parts -- widely recognized as being both semantically distinctive and lexically persistent. (It should be noted, however, that in some comparable categories -- such as deictics, negatives, and interrogatives -- he lists no Proto-Edoid forms.) Of these, 50-some seem related to each other by vocalic or consonantal alternations suggesting that the lexemes themselves originated as mutual variants.

The commonest of these alternations are between tense and lax vowels or between fortis and lenis consonants. This fact, in turn, suggests that it might be phonologically more economical to analyze Proto-Edoid as having only 5 vowels and 13 stops and nasals at the segmental level plus 2 reconstructable suprasegmental phonemes -- one of laxity, which can be added to vowels, and one of lenitude, which can be added to stops and nasals.

Other alternations, however, also occur. Among consonants, these involve changes in manner, position, voice, or some combination of these. Among vowels, on the other hand, any substitution is possible.

Apophonic alternations in Proto-Edoid were apparently not equally common in all lexical categories. They occurred with decreasing frequency in the following series of categories, the pronominal being most apophonic:

1. pronouns
2. numerals
3. animals and animal parts
4. human body-parts
5. basic activities
6. basic qualities

Examples follow:

1. - mẹ-, “I”[4]
-mhẹ, “my”[5]
-mha-, “we”
bha-, “you” (pl.)

2. -chaG-, “three”[6]
-chaN, “six”[7]

-chiN-, “five”[8]
-chiạ, “seven”[9]
-ciạ-, “nine”[10]

-niạ, “four”
-nhị- “eight”

-gbeN-, “ten”
-gheG-, “twenty”
-gbhaN, “thirty”

3. -bhụa, “dog”
-bhụị, “sheep”

-kpẹN, “leopard”[11]
-kphanh-, “horn”

-koko, “rooster”
-khọkhọ, “chicken”[12]

4. -chiạ-, “head”
chọGi, “ear”
chuạ, “penis”

-chu(v)e-, "nose"[13]

-dhị-dhụ, "eye"[14]
-dhị-kụn, "tooth"
-dha-mhị, "tongue"[15]

-fịNa, "fingernail"
-phịNa, "skin"
-phaNi, "belly"[16]

-nịa, "vein"
-nuạ, "mouth"[17]

5. yọN- "drink water"
-yạN, "drink a fermented beverage"

di, "tie"
do, "weave"

va, "to butcher"
vu-, "to harvest"

ka-, "carve"
kẹ-, "split"

la-, "lick"
lọ, "grind"[18]

mu, "catch"
mị-, "see"[19]

-Ni, "fall"
-Nị, "urinate"[20]

gu, "dig"
ghu, "die"[21]

po, "be finished"
puN, "extinguish"
phu-pho, "blow (one's breath)"[22]

gbe-Gi, “beat, injure”
kphe-dhi, “beat drums”
gbhe, “dance”
gbiạ, “laugh”[23]

6. bi, “black”
bha-, “red”

vọ-, “full”
wụ-, “strong”

Other apophonic correspondences cut across the preceding semantic categories. Examples follow:

-doGi, “stone”
dọGi, “sharpen on stone”

-ɗi, “palm tree”
ɗa, “drink palm-wine”

dhị, “eat”
dhọ-, “swallow”

-guạ, “hoe”
guạ, “dig cropland”

-kpa, “bag”
-kpạN, “cloth”

-ɗiạ-, “heart”[24]
ɗu-, “to pound”

-ɓọ, “arm”
ɓọN, “build”

-ɓu-, “sand”
ɓuN, “many”

bhẹ-, “wide”

-bhaGi, “house”

-dạ, “river”
de-dhi, “long”

-ci-, “saliva”
cụ, “sing”[25]

ɓiạ, “give birth”
-ɓi, “leaf”

-gbọ, “new”
-gbọN, “life”

-dhi-mhi, “corpse”
-nha-mhị, “meat”[26]

Some of the above pairs, triads, and tetrads may themselves belong to still larger morphosemantic clusters. It is quite possible, for example, that the root *-cha-* of the numerals three and six and the root *-chi-* of the numerals five, seven, and nine are themselves variants of a single root, which could be represented as *chE* and defined (somewhat awkwardly) as “any number between two and ten, exclusive of four and its multiples.”

Similarly, the root *chA*, extractable from the four *chi/chu/cho* forms meaning “head,” “ear,” “nose,” and “penis” may belong to a larger cluster of eight forms. These eight, however, cannot simply be listed serially in the manner of numerals or of such tightly sequential forms as the Proto-Edoid words for “eye,” “tooth,” and “tongue” (listed under category 4, above). For, instead of comprising a semantic chain, they comprise a semantic net, the strands of which lead in various directions. The only systematic way to list these forms serially is to follow the articulatory positions of the apophonating vowels found in them, moving sequentially from high front to high back to lower front to lower back and so on. So arranged, the eight forms are:

chiạ-, “good”
-chiạ-, “head”
-chị-, “man, male”
chuạ, “hear”
-chuạ, “penis”
-chuạ, “hunter”

-chuạ-, “nose”
-chọ-, “ear”

But in none of these cases do adjacent forms show as much semantic as phonological affinity to one another. To render the internal relations of the entire octad meaningful, we must not only put semantic criteria before phonological ones but arrange the forms involved two-dimensionally, as below:

	-chuạ, “hunter’	
	chị, “man, male”	
	-chuạ, “penis	
-chuạ-, “nose”	-chiạ-, “head	chiạ-, “good”
	-chọ-, “ear”	
	chuạ, “hear”	

In this cruciform arrangement, the semantic connections between adjacent forms are, I think, reasonably clear, although, in the absence of the four central forms, the four peripheral forms (“hunter,” “good,” “hear” and “nose”) would seem lexically unrelated.

If a single proto-meaning can be postulated for the preceding ensemble, it is probably “bodily projection,” with semanatic extensions in the directions of “masculine occupation,” “virtue,” “auditory perception,” and “olfactory organ,” respectively.

It may or may not be coincidence that the next largest such two-dimensional cluster, which likewise exhibits four different root-vowels, also seems to exhibit semantic divergence from a proto-meaning of “projection.” The five lexemes involved, arranged as above, are these:

	-thu, “hat”	
	-tụN, “hair”	thiạ, “tail”
-thaN-, “tree”		
	-thuạN-, “ungulate”	

Here there is no central lexeme providing semantic links with the peripheral lexemes. Nor is it clear whether the semantic path to “ungulate” runs through “horns” or through “hooves.” Nonetheless, the semantic field as a whole shows some cohesion. There is, moreover, more than a remote possibility that the two roots *chA* and *t(h)A*, both meaning “projection” are cognates as well as synonyms. If so, we here encounter a palatal/apical alternation in addition to the other consonantal alternations previously illustrated.

There are few cases in which the reality of the segmental apophony that I postulate for Proto-Edoid seems beyond question. One of these is the vowel alternation in *-fẹ-* or *-fo-,* “breeze, wind.”

On the other hand, there are more than a few cases in which phoneme-sequences are identical but meanings are sufficiently disparate as to suggest accidental coincidence of form. In the cases of *-chuạ,* “penis”/”hunter,” and *-chiạ-,* “head”/”good,” we have already discussed arguments for ultimate lexical unity. Similar arguments can also be made for *mọ,* “fruit”/”child,” *-ki*, “moon”/”market,” *-tọN*, “dig”/”roast,” and *khụ-,* “heavy”/”war.” In order, these arguments are: first, that children are the fruit of the womb; second, that early markets may have been held monthly; third, that roasting may once have been done in pits; and, fourth, that war weighs heavily on those who cannot escape it.

Returning to our primary theme of phonemic apophony in Proto-Edoid, we find, if we examine other reconstructed languages, that apophony, consonantal as well as vocalic, is by no means peculiar to Edoid or to other Niger-Congo language groups. Starting with the best known and most widely accepted of reconstructed languages, Proto-Indo-European, we encounter not only the familiar alternation of *e* and *o* but also consonantal variability such as the following:

bhel-/bher-, “shine”
ghel-/ghen-, “jaw”
tragh-/dhragh-, “pull”[27]

What is more, we also encounter, in Proto-Indo-European, vexed cases of lexical identity and disparity in some of the same semantic domains discussed for Edoid above. Two salient examples from the category of bodily organ are *ōus*, “mouth”/”ear,” and *genu-,* “chin”/”knee.” Although Julius Pokorny prefers to treat these forms as two pairs of homonyms,[28] I am inclined rather to regard them as two polysemous lexemes, the first of which is broadly definable as “opening in the head” and the second as “bony projection.”

Even in so remote a reconstructed language as Proto-Nostratic, the postulated ancestor of Proto-Indo-European, Proto-Hamito-Semitic, and perhaps also Proto-Niger-Congo, both phonemic apophony and related questions of lexical identity confront analysts. Examples are:

ber-, “give”/bar-, “take”
ḳap-/ḳab-, “seize”
pur̤-/pül-, “flea”[29]

My conclusion is that apophonic alternation of vowels and consonants was at least as common in Proto-Edoid as in other early proto-languages. And my suspicion is that, when and if we are able to reconstruct the proto-prosodies of language groups having lexical tone, we will also discover systematic alternation of pitch levels in them.[30]

Footnotes

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1. Ben Ohiomamhe Elugbe, *Comparative Edoid: Phonology and Lexicon*, Delta Series 6, University of Port Harcourt Press, Port Harcourt, Nigeria, 1989.

2. It is typologically improbable that any language has or had more lenis consonants than fortis consonants. My guess is that the Proto-Edoid velar nasal was fortis rather than lenis.

3. “Glottochronology,” Section 22.12, pp. 395-398, in *Historical and Comparative Linguistics* by Raimo Anttila, John Benjamins Co., Amsterdam and Philadelphia, 1989.

4. Dots under vowels indicate that they are centralized and lax, produced, in Elugbe’s phraseology, by a “non-expanded pharynx.”

5. The letter *h* following a Proto-Edoid consonant indicates that the consonant is lenis, or weakly articulated.

6. Capital *G* represents a voiced velar approximant – presumably weaker than a fricative.

7. Capital *N* represents a proto-phoneme that may have been either segmental or suprasegmental. If segmental, it was a velar nasal. If suprasegmental, it functioned to nasalize the accompanying vowel (in graphic terms, the preceding vowel).

8. The hyphen preceding non-verb forms indicates that a noun-prefix – usually consisting of a single vowel – has been omitted.

9. Because of the uncertain articulation of N and the “blurred” articulation of *a*, these two phonemes may easily have alternated with each other.

10. The grapheme c̲ represents a voiceless palatal stop.

11. Initially, this form may have meant "(long)tooth" or "(long)claw" and later, by transfer, a predator characterized by either or both hard parts.

12. Like the English words *cock* and *cackle*, these two reduplicated forms are probably echoic. But this fact in no way negates the apophonic relation between them.

13. The meaning common to these four forms is probably "projecting organ." (For further connections, see the cruciform diagram below.)

14. This reduplicated form exhibits internal as well as external vowel alternation.

15. Over half of all Proto-Edoid terms for human body parts are disyllables ending in a non-apical nasal followed by a vowel. This nasal-plus-vowel suffix may be a postpositive noun classifier.

16. Because of the frequency of bloating due to nutritional deficiencies in tropical areas, the belly may have come to be thought of as the bodily region of stretched or conspicuous skin.

17. Ruptured veins, releasing blood, may have been thought of as mouths of streams.

18. Both licking and grinding are processes of volume-reduction.

19. To see something is to catch sight of it.

20. Urination was probably thought of as spilling liquid or letting it fall.

21. Dying may have been metaphorically described as digging one's grave.

22. The semantic connection between breath and death may be provided by the word *expiration*, which once meant exhalation but now means termination.

23. Here there seems to be a linear semantic progression from hitting to drumming to eurhythmics to enjoyment.

24. The graphemes *ɓ* and *ɗ* designate the implosive equivalents of *b* and *d*.

25. Salivation may have been thought of as the accompaniment of any intense or pleasurable oral activity.

26. The alternation of *d(h)* and *n(h)* parallels that of *b(h)* and *m(h)*, cited in category 1 (pronouns).

27. Calvert Watkins, editor, *The American Heritage Dictionary of Indo-European Roots*, Houghton Mifflin Co., Boston, 1985.

28. Julius Pokorny, *Indogermanisches Etymologisches Wörterbuch*, Francke Verlag, Bern and Munich, 1969.

29. Mark Kaiser, translator and arranger, "The Nostratic Reconstructions of Illich-Svitych," *Mother Tongue*, Boston, March 1988, pp. 27-57.

30. Roger W. Wescott, "Tonal Iconism in Bini," *Studies in African Linguistics*, Los Angeles, July 1973.

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CONSONANTAL APOPHONY IN INDO-EUROPEAN ANIMAL NAMES

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Despite Cyrus Gordon's prowess as a Semitist, Indo-European studies in his honor seem to me to be wholly appropriate. For, as the founder and head of the Brandeis University Program in Mediterranean Studies, he was as much involved in Hellenic as in Hebraic researches. Moreover, as a veteran Near Eastern archeologist, he was a student of both the history and the prehistory of such Asiatic Indo-Europeans as the Phrygians, the Hittites, the Iranians, and the Armenians.

Apophony and Affixation

The word "apophony" is a Hellenic calque on the German linguistic term *Ablaut*, whose literal meaning is `off-sound'. Apophony, or Ablaut, is phoneme gradation of a type that is most familiar among internal vowels in grammatical paradigms like English *sit/sat*, *dig/dug*, or *drink/drank/drunk*. However, apophony can also occur in non-grammatical paradigms, such as *snip/snap*, *sniff/snuff*, or *clink/clank/clunk*.

Furthermore, apophonic gradation may involve consonants as well as vowels. In contemporary English, such apophony is most frequently encountered in pairs like *safe/save*, *breath/breathe*, or *use/use*, where, in each case, the voiced fricative which terminates the second word has the grammatical function of converting the preceding nominal (i.e., noun or adjective) into a verb. But there are also non-grammatical paradigms like *hack/hash*, *crack/crash*, and *smack/smash*, in which the sound-shift involved is not one of voice but of manner, the dorsal stop which terminates the first word being converted, in the second, to a dorsal fricative. Here the semantic shift seems to be from a punctive sense (of momentary verbal action) to a resultative sense (of completed verbal outcome).

Pairs or series of apophonically linked words may also be said to exhibit replacive affixation. An example is the English singular vs. plural pair *man/men*, in which pluralization is signaled by the replacement of nuclear *a* by *e*. (A more productive type of pluralization is exemplified by the pair *mat/mats*, in which affixation is additive rather than replacive.)

In terms of typological evolution, the most archaic type of additive affixation is probably infixation of an asyllabic type. In both attested and reconstructed languages, asyllabic infixes most commonly consist of non-obstruent consonants known as sonorants -- that is, nasals, linguals, or glides. These sonorants may either precede or follow the monophthongal vocalic nucleus of a base or word. In the former case, the sonorant may be termed prenuclear; in the latter case, postnuclear. Of the contemporary infixes listed in Table 1, below, none is either grammatical or productive: all may be regarded as fossilized.

Table 1: Sonorant Infixes in English

phoneme	prenuclear	postnuclear
y	mew / moo	creak / cricket
w	whack / hack	zoom /zuwm, zum/
l	bleep / beep	dolt / dote
r	scrimp / skimp	purp / pup
m		tamp / tap
n		crunch / crush[1]
ŋ		clink / click

To judge by the etymological dictionaries of Indo-European[2], such sonorant infixes were considerably commoner in Proto-Indo-European (hereafter PIE) than in modern English, though their semantic nuances are harder to specify. Examples follow in Table 2, below:

Table 2: Sonorant Infixes in PIE

phoneme	prenuclear	postnuclear
y	g(y)ew-, `chew'	de(y)k-, `show'
w	s(w)eks-, `six'	re(w)p-, `snatch'
l	k(l)ew-, `hear'	ke(l)p-, `grasp'
r	gh(r)ebh-, `exchange'	a(r)k-, `angled'
n	m(n)egh-, `copious'	ghe(n)d-, `get'
m		ghe(m)bh-, `jaw'

Apophonic Directions

If, in an apophonic sequence, consonants take on either voice or continuance, we may call that sequence vertical. But if, in such a sequence, the consonants change manner (moving from either an advanced to a retracted position or vice-versa), we may call that sequence horizontal.

An example of voicing in English is provided by the verb *jeer*, in contrast to *cheer*, where the voicing has a negative semantic force, converting plaudition to derogation. (The same force is carried by the voiced obstruents in *dinky*, as against *tiny*, or *groan*, as against *croon*).

An example of continuance in English is provided by the sequence *drip/dribble/drivel/drool* (Medieval *driwel-*), in which the first form clearly connotes punctuated, though reiterated, occurrence, while the last as clearly connotes continuous occurrence.

Voicing and continuance can and do co-occur, as in the English pairs *skip/skim* and *pa/ma*. The occlusive coda in the first verb suggests discontinuity of motion, while the nasal coda in the second suggests continuity. In the nominal pair with parental reference, occlusive discontinuity implies intermittency of fatherliness, while nasal continuity suggests constancy of motherliness.

Horizontal apophony, as noted, involves articulatory advancement or retraction. In English sequences like *bash/dash/gash*, no correlation between articulatory position and meaning is obvious. In sequences of English nasals and glides, however, phonosemic correlations seem clearer. Among nasals, for example, labial *m*, as in *mammy*, suggests the primal intimacy of maternity, while apical *n*, as in *nanny*, suggests the surrogate motherhood of a nurse, aunt, or grandmother. Among PIE pronouns, **me(s)* referred specifically to the singular `I' or `me', while **ne(s)* referred more generally to `we' or `us', whether inclusive or exclusive of the interlocutor.

Among glides, the palatal *y* usually has a diminutive force, while the labio-velar *w* has an augumentative force. Insofar as these glides have secondary connotations, those of the palatal glide are bright and high, whereas those of the labio-velar glide are dark and low. English examples (where <ee> and <ea> represent /iy/ and <oo> represents /uw/) are:

pee (urine)	vs. poo (feces)
gleam	vs. gloom
tweet (of a bird)	vs. toot (of a steam-whistle)

PIE examples (where *i* = syllabic *y* and *u* = syllabic *w)* are:

bhey-, `shrink'	vs. bhew- `grow'
pik-, `spruce-resin'	vs. puk-, `spruce-tree'
sey-, `drip'	vs. sew-, `drink'
mey-, `urine'	vs. mew-, `muck'
leyp-, `adhere'	vs. lewp-, `peel away'

Undoubtedly the commonest of all iconic consonantal oppositions is that between the two lingual sonorants, vibrant *r* and lateral *l*. Ironically, however, the *r/l* pairing is difficult to classify in terms of horizontal and vertical types of apophony. The reason for this typological anomaly is that either lingual may be articulated at any position between the dental and the uvular and that either one may be lenited to the point of semi-vocalization. But in most Indo-European (hereafter IE) languages, both linguals have a generally apical articulation, and the vibrant *r* is tapped, trilled, or rolled in such a way as to make its articulation more vigorous and more audible than that of the lateral *l*.

In most cases in which *r* and *l* are in phonosemic contrast, the form with *r* is augmentative in force and the form with *l* is diminutive. English examples follow:

augmentative	diminutive
rump	lump
brag	blab
braze	blaze
crush	clutch
crash	clash
creak	click
cramp	clamp

This lingual opposition may be descried even among frequentative suffixes, as in the two obsolescent verbs *tidder*, `procreate', and *tiddle*, `fondle'.

Analogous oppositions may be found in most other IE languages, one of the more familiar ones being Latin, as below:

augmentative	diminutive
marcus, `sledge-hammer'	malleus, `hammer'

puer, `boy'	pullus, `cockerel'
gurges, `whirl-pool'	gula, `throat'

The same is true of PIE itself, in which we find such comparable oppositions as these:

augmentative	diminutive
ker-, `hot'	kel-, `warm'
wer-, `water'	wel-g-, `wet'
rey-, `flow'	(s)ley-, `slime'

Sometimes binary oppositions between forms with augmentative *r* and diminutive *l* are expanded to form sonorant triads, in which the two lingual antitheses are mediated by the non-lingual sonorant *n*. Although the semantic import of this apical nasal in such cases is less clear, it apparently signals neutralization of the contrast between augmentation and diminution. Apparent examples of this three-way phonosemic contrast in English, Latin, and PIE follow:

	augmentative	intermediate	diminutive
English	bore	bane	bale(ful)
Latin	carmen, `song'	cano, `I chant'	calo, `I call'
PIE	mer-, `kill'	men-, `chew'	mel-, `grind'

Predictably, some of these triads seem to have lost a member during the passage from PIE to the attested daughter IE languages. This loss reduced apophonic triads to dyads, or pairs -- not only the polar *r/l* pair illustrated above, but also the less clearly contrastive pairs *n/r* and *n/l*. The semantic probability is that, in cases where an *r-* form was lost, the *n-* form functioned, by default, as the augumentative, whereas where an *l-* form was lost, the *n-* form functioned, compensatorily, as a diminutive. Apparent examples of these truncated sonorant oppositions follow:

	augumentative	diminutive
English	wart	wen
Latin	per, `through'	penitus, `within'
PIE	mer-, `delay'	men-, `remain'
English	sun	sultry
Latin	cunnus, `vulva'	cūlus, `anus'
PIE	snew-, `snooze'	slew-, `sleepy'

Among most of the IE word-groups whose members are linked by consonantal apophony, the linkage is supplied by a single consonantal series, such as the vertical labial series exemplified by Greek λίπος, `grease,' λείβω, `I pour', and ἀλείφω, `I anoint'. A substantial number of such word-groups, however, are linked by two series of consonants, one of which constitutes the onset of the root syllable of each member word and the other of which constitutes the coda of that root syllable. Four such pairs of words are listed in Table 3, below.

Table 3: Doubly Apophonic Cognates in IE

language	pair of forms	onset	coda
English	tap dab	d/dh	b/bh
Latin	rēte, `net' nōdus, `knot'	r/n	t/d
Doric Greek Attic Greek	πεδά, `among' μετά, `among'	p/m	t/d
PIE	kar-, `praise' gal-, `praise'	k/g	r/l

Synonymy and Antonymy

Semantic variability among the pairs and triads listed above, both in tables and in text, inevitably raises the thorny question of the degree of synonymy necessary to establish phonically similar but distinct forms as cognates. Until semantics becomes as rigorous a discipline as phonology is, of course, no firm and final answer to this question can be given. Paradoxically, perhaps, antonyms are probably the most plausible cognates, since their polarity reflects the phonemic contrasts exhibited by the apophony of their divergent consonantisms. Representative antonyms are English *better* vs. *bad* and Latin *super*, `above', vs. *sub*, `below'.

Second only to antonyms in cognitive plausibility are word pairs that exhibit clear differentiation of meaning without sharp semantic antithesis. Representative examples are Latin *pluit*, `it rains', vis-à-vis *fluit*, `it flows', and Greek ὀκτώ, `eight', vis-à-vis ὄγδοος, `eighth'.

When sequences exhibiting consonantal apophony exhibit no corresponding semantic differentiation, it is probable that former semantic distinctions have been lost. A dyadic example of such semantic merger is provided by Greek βρέμει and Latin *fremit*, both meaning `it roars'. Here we may infer that the form with the b-onset once meant `roars like a man', while the form with the f-onset (a bh-onset in PIE) once meant `roars like a storm'. A triadic example of such semantic merger is provided by Old Lithuanian *eš*, Latin *ego*, and Sanskrit *ahám* (from PIE *ek-*, *eg-*, and *egh-*) all meaning `I'. Here we may infer that the form with the voiceless stop could have meant `I (your equal)', the form with the voiced stop `I (your inferior)', and the form with the aspirated stop `I (your superior)'.

When sequences exhibiting apparent consonantal apophony also exhibit some similarity of meaning, uncertainty must be acknowledged. For example, a pair of English words whose apparent horizontal apophony may be due to chance is *summer/sun*. And a pair of PIE forms whose ultimate cognation is only slightly more probable is *ked-*, `go', vis-à-vis *ad* (<*xed*), `toward'.

Marked and Unmarked Phonemes

In every language there are speech-sounds that occur more frequently than others, presumably because they are easier to articulate or to combine with adjacent speech-sounds. And in this regard there is considerable congruity between languages, some sounds (such as voiceless explosive stops) being common and others (such as voiced implosive stops) being rare.

In PIE, the vowel *e*, as in *ed-*, `eat', was so much commoner than *a* or *o* that some Indo-

Europeanists have seriously considered the theory of primal PIE `vocal monotony', in accordance with which the earliest stage of PIE had had no vowel except *e* (which could consequently be regarded not a contrastive vowel phoneme but as a syllabifier).

Among consonant types, one could not convincingly claim that PIE obstruents were commoner, and therefore less marked, than PIE sonorants or vice-versa. Among obstruents, however, one could say that voiceless stops were commoner, and therefore less marked, than voiced, aspirated, or glottalized stops, which were therefore marked phonemes.

Because of phonological disputes over the number and nature of marked stops in PIE, we cannot generalize with precision about the semantic import of each marking. But it does seem clear that marked stops are more likely than unmarked stops to incline the words in which they occur toward intensification, augmentation, or derogation. Examples of each trend are: English *whet* vs. *cut* (from PIE *kwed-* and *gud-*), English *thorn* vs. *tree* (from PIE *tr-n-* and *dr-ew-*), and Greek τένδω `I nibble', vs. τενθεία, `gluttony' (from PIE *tend-* and *tendh-*).

The Iconicity of Speech-Sounds

All speech-sounds have some inherent articulatory and acoustic qualities, many of which are reminiscent, and hence suggestive, of auditory or other sensory characteristics of the non-linguistic environment. Generally speaking, all vowels and voiced consonants have sonority and, in this respect, contrast with voiceless consonants, which, having intrinsically higher pitch, sound `thinner'. Among vowels, those whose tongue-position is high have less sonority than those whose tongue-position is low, while those whose tongue-position is advanced, emanating from a smaller oral cavity, sound more diminutive. Among voiced consonants, nasals, lacking occlusion, sound both `softer' and more enduring than stops. Among consonants in general, labials, being literally `lippy', connote what is primal, infantile, and inarticulate (as in English *baby-pap*, *mumble*, *piffle*, and the like). Apicals, involving the teeth and tongue in rather precise co-articulations, are commonly found in words for these organs (including the English terms *tooth* and *tongue* themselves, as well as deictics like *this* and *that*). And dorsals, being posterior to most other speech-sounds, suggest whatever is throaty or related to the rear of the body (as in English *gag* or *cack*) as well as vocalizations typical of non-human species (such as *cluck* or *croak*).

Secondary or Contextual Phonosemy

Apparent exceptions to these phonosemic generalizations can often be explained by context. In most cases in which a phoneme or phonetic feature connotes diminutive status, the diminution involved is plauditory or affectionate in tone, explicable, presumably, in terms of the indulgent attitude of parents toward their children or of pet-owners toward their pets. But where efficacy of action is concerned, diminutive phonosemy can become belittling and hence disparaging. A good example is the sphere of human handedness, where the vibrant lingual *r*, which usually connotes what is harsh or overpowering, now connotes effectiveness, while the lateral lingual *l*, which usually connotes what is winsomely appealing, now connotes what is ineffectual and hence subject to rejection. A bipolar example of this contextual reversal is found in the word for `left(-handed)', English *left* (as against *right*), German *link* (as against *recht*), and Latin *laevus* (as against *dexter*). A tripartite example of it is constituted by Greek μάρη, `(right) hand', Latin *manus*, `hand', and Latin *malus*, `bad' (whose earlier meaning was presumably `left-handed').

Apophonic Frequencies

Of the various IE consonantal series within which apophony often occurs, the two commonest ones are the clearly vertical velar sequence *k*, *g*, *gh*, *x* and the arguably horizontal series *r*, *l*. The frequency of velar apophony is readily explained by the fact that PIE velars outnumbered labials and apicals combined. But the frequency of lingual apophony cannot be so explained, since PIE linguals did not outnumber other types of sonorants, such as nasals and glides. Perhaps the reason for the frequency of IE *r/l* alternation is the fact that, both in IE and in non-IE languages, *r* and *l* often merge as a single phoneme (as in Proto-Indo-Iranian or modern Korean).

An example of the PIE *k/g/gh/x* apophonic series in English is the sequence *have/keep/give/off*, whose root meaning was probably `to change ownership'. An example in Latin is *cerēs*, `grain'/ *grānum*, `seed'/ *herba*, `plant'/ *arbor*, `tree', whose root meaning may have been `to harvest'.

IE Animal Names

Wherever the last common `homeland' of the Indo-European speakers was, it must have been temperate in climate, since their zoonymic vocabulary included words for the better known animals of non-tropical Eurasia.

Among these terms for animals, there was an exceptionally high proportion of cognates exhibiting consonantal apophony. Within this category, the largest subcategory consists of forms exemplifying vertical velar apophony, as in Table 4, below:

Table 4: Zoonyms Exhibiting Velar Apophony

PIE k	PIE g	PIE gh	PIE Ꝗ<x
hound	cur	girl	Hittite huelpi-, "whelp"
horse	colt		
	kid	goat	Greek ἀίξ, "goat"
Latin caper, "he-goat"		Old Irish gabor, "buck"	Latin aper, "wild boar"
Latin cervus, "stag"			Latin aries, "ram"
Sanskrit kapi, "ape"			ape
hen	Latin gallus, "cock"	gander	Latin anas, "duck"
rook (Old English hrōc)	crow	grouse	arn (obsolescent for "eagle")

Sanskrit kṛmis, "worm"	Old Prussian girmis, "worm"	worm

The next largest subcategory of such animal names contains cognates exhibiting lingual/nasal apophony, as in Table 5, below:

Table 5: IE Zoonyms Exhibiting Lingual/Nasal Apophony

PIE r	PIE n	PIE l
ram		lamb
Latin vervex, \`wether'		wool(-bearer)
	Latin canis, \`dog'	Lithuanian kale, \`bitch'
horse		colt
	hen	Latin gallus, \`cock'
hart	hind	
stork		stilt (the bird)
frog		flea
	snake	Dutch slang, \`snake'

IE Names for Body-Parts

Because most IE terms for body-parts can apply to animals as well as to human beings, consonantal apophony exhibited by such terms may be considered part of the zoonymic pattern presented above. Most of the apophony exemplified by the IE lexicon of bodily organs occurs among velar obstruents, as indicated in Table 6, below:

Table 6: IE Body-Organ Terms Exhibiting Velar Apophony

PIE k	PIE g	PIE gh	PIE 0<x
Latin caput \`head'	Greek γαβαλά, \`brain'	Old High German gibilla, \`skull'	
Latin caesariēs, \`hair'		Greek χαίτη, \`mane'	

heart
Sanskrit hrd,
`heart'

Latin corpus
`body'
Old Norse
kroppr, `body'

Greek γένυς,
`chin'
Greek χελῡ́νη,
`jaw-bone'

Latin costa
`rib'
Latin os,
`bone'

hear
ear

Latin cutis,
`skin'
Latin uterus
`womb'

There are, of course, non-velar sequences illustrating consonantal apophony among IE words for body-parts. One of the most protracted of these is a PIE form denoting an external part or extension of the body: pet-, "wing"; pett-, "feather"; ped-, "foot"; pes-, "penis"; pen-, "fin; per-, "feather"; pel-, "skin."

Animal Names and Animal Symbolism

We noted earlier that the generation of new vocabulary by apophonic modification of existent roots is apparently an older process than such generation by means of affixation. So it may be no coincidence that consonantal apophony is so common among animal names, in view of the fact that human animal-symbolism, both verbal and visual, is archaic.

Bear skulls arranged in circles have been found in Middle Paleolithic caves. Paintings of horses and other animals adorn the walls of Upper Paleolithic caves. Most preliterate peoples make totemic associations between animal species and human kin-groups. All zodiacal systems associate asterisms with a variety of animals. All peoples have traditional folk-tales, such as Aesop's Fables, which describe talking animals assuming human-like roles. Many peoples, such as the ancient Egyptians and the contemporary Hindus, have venerated zoomorphic deities. Pre-alphabetic scripts contained glyphs depicting birds and other animals. Both families and nations have taken as their emblems impressive predators like lions and eagles. And many individuals have, as surnames, the designations of herbivores such as English Bull or Doe.

Epilog

My conclusion is that, if linguists interested in long-range comparison were to show more interest in consonantal apophony, they would find an increasing amount of it the further back in time they took their reconstructions. The apparent absence of such apophony in most reconstructed languages is due, I think, far less to the nature of the lexical material involved than to the orientation of its investigators.

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1. *Crunch* may be regarded as an epenthetic variant of an unattested form **crunsh*, having the same relation to it that *Welch* has to the older form *Welsh.*

2. Gyula Décsy, *The Indo-European Protolanguage*, (Bloomington: Eurolingua, 1991); Stuart E. Mann, *An Indo-European Comparative Dictionary*, (Hamburg: Buske, 1984-87); Julius Pokorny, *Ein Indogermanisches Etymologisches Woerterbuch*, 2 vols.(Bern and Munich: Francke); Calvert Watkins, *The American Heritage Dictionary of Indo-European Roots*, revised, (Boston: Houghton Mifflin, 1985)

3. The three digraphs *bh, dh, and gh* ought, in terms of phonological purism, to be written with a superscript *h*, indicating voiced or murmured aspiration. (Otherwise the *h* could erroneously be taken to be a separate phoneme, and the digraphs could be mistaken to represent diphonemic clusters.) But I here conform to the graphemic consensus of Indo-Europeanists.

4. The optional initial sibilant here, referred to by Indo-Europeanists as `s-movable', persists in modern IE languages. A representative example is the English pair *mash / smash.*

5. It is possible that, in pre-IE, this neutralizing sonorant was not an apical nasal, apophonous with *m*, but a sometimes nasalized retroflex lateral of the type that occurs in Bini and other West African languages. (In Bini, it is sometimes transcribed by the diagraph *rl* and nicknamed `the 'ellish *r*'.)

6. This English triad is directly derived from PIE *bher-*, `cut', *bhen-*, `harm', and *bhel-*, `misfortune'.

7. This Latin triad is analogously derived from PIE *kar-*, `extol', *kan-*, `sing' and *kal-*, `cry'.

8. Direct English derivatives of these PIE reconstructions are *murder*, *mouth*, and *mill*, respectively.

9. Onset and coda consonantisms are here presented in their PIE, rather than their Germanic, form, to which the consonant shifts specified by Grimm's Law must be applied.

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10. Latin *f* is the historical reflex of PIE *bh*. (As an intermediate stage between these two labial obstruents, one may assume a prehistoric Greco-Italic *ph*.)

11. An alternative phonologization of this obstruent triad is *ek*-, *ekʼ*-, and *eg*-, where the voiceless stop is phonetically unchanged but *kʼ* represents a glottalized voiceless stop and *g* an unaspirated voiced stop. (See Paul G. Hopper, \`Glottalized and Murmured Occlusives in Indo-European', *Glossa* 7:141-166, 1973; and Thomas V. Gamkrelidze, *Sonantensystem und Ablaut in der Kartwelsprachen*, Tuebingen: Gunter Narr, 1982.) Not only do the glottalization and aspiration of PIE stops remain in doubt, but so does their numerical patterning. There may have been three stops in each articulatory position, as most 20th-century Indo-Europeanists believe; four such stops, as most 19th-century Indo-Europeanists believed; or more than four -- especially if other articulatory features, such as lenition or fortition, are postulated.

12. I follow Edgar H. Sturtevant (*The Indo-Hittite Laryngeals*, Linguistic Society of America, Baltimore, 1942) in maintaining that, during the penultimate stage of PIE, which may be nomenclaturally distinguished as Proto-Indo-Hittite, there was at least one voiceless fricative besides the sibilant phoneme *s*. I write this phoneme as *x* and describe it as a velar fricative, equivalent to the contemporary German \`ach-laut', and regard it as having been elided only after it had lowered and retracted a following *e* to *a*.

13. See Winfred P. Lehmann, *Proto-Indo European Phonology*, Austin: University of Texas Press, 1955, esp. pp. 112-114.

14. It remains in dispute whether the PIE aspirated stops (if they existed at all) were voiced, voiceless, or both.

15. Most Indo-Europeanists, while distinguishing graphemically between syllabic *i* and *u* and asyllabic *y* and *w*, treat the two palatal voicoids as allophones of a single palatal phoneme and the two labio-velar vocoids as allophones of a single labio-velar phoneme.

16. Cf. Roger W. Wescott, \`Linguistic Iconism', *Language*, v. 47, n.2, 1971.

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17. Cf. Roger W. Wescott, `Derogatory Use of the Marginal Phoneme /b/ in Proto-Indo-European', *The Journal of Indo-European Studies*, v. 16, n. 3/4, pp. 365-369, Fall 1988.

18. The assumption made here is that the word *girl* once meant `puppy', just as the colloquial term *kid*, now meaning `child', once meant `young goat' only.

19. Although the hominoid apes of tropical Africa and south-east Asia were presumably unknown to the PIE-speakers, the cercopithecoid apes of Eurasia and north Africa may not have been. Even today, macaque monkeys are encountered in the wild from the Mediterranean region to Japan.

20. All four of these bird-names may be derived from the PIE base *kan-*, `vocalize', or one of its apophonic variants.

21. The words *horse* and *colt* are repeated from Table 4 because they exhibit biserial apophony – that is, consonant alternation not only in the root onset but also in the root coda.

22. The reason for repeating *hen* and *gallus* from Table 4 is just as in endnote 21, above.

23. A frog is here interpreted as having meant `big jumper', in contradistinction to a flea as `little jumper'.

Consonantal Apophony in Proto-Human

by John D. Bengtson

Consonantal ablaut, or apophony, (as well as the better-known vocalic ablaut) appears to be a widespread and primeval morphological feature of human language. A fuller understanding of this phenomenon is essential to the further progress of paleo-linguistics. It has been discussed by a few paleo-linguists, notably Morris Swadesh, Carleton T. Hodge, and Roger W. Wescott (in this issue), but does not seem to figure in Nostratic literature.

In the course of comparing words from diverse languages (in the 1980's), I noted that the second consonant of some roots seemed to alternate between dental or alveolar stops [t, d] ~ (alternating with) the corresponding lateral [l] ~ vibrant [r] or ~ nasal [n]. In some cases such apparent alternations can be shown to be the result of fairly recent phonological change (e.g., Indo-European *solwo- > Sanskrit *sarva-* 'all' (Greek ολος), but the coexistence of roots such as **pet- ~ *pel- ~ *per-* in several ancient macro-families (see below) cannot be accounted for by these recent changes, but point instead to a very ancient consonantal ablaut that encoded semantic nuances and/or grammatical distinctions. The following notes are based on my "Studies in Paleolexicology" (ms. ca. 1985). The lexical forms given below are not meant to include all possible examples, but are simply suggestive of some forms that might reflect the primeval apophony. The forms **PET, **PER, etc. are not reconstructions, but theoretical prototypes with which to classify the alternations. Note also that alternation of the initial consonant (e.g., p ~ b ~ p' ~ m ~ w) was also in play.

1. Type **PET ~ **PER ~ **PEL ~ *PEN 'feather/wing/hair':

Type **PET: Nilo-Saharan: Kanuri *fefeto* 'wing'; Songhay *fita* 'feather',
Kelo *pɔtɔ*, Gaam *fiid* 'feather';
Nostratic: English *feather*, Hittite *petar* 'wing', Greek
πτερόν 'feather, wing'
Dene-Caucasian: Hunzib *pode* 'feather', Khinalug *pɨ* 'hair'; Tibetan
phud 'hair-knot, tuft of hair'
Amerind: Marinahua *pĩ́ta* 'wing', Galibi *ipotu* 'feather', Algonkian
**-xpeto-* 'wing'

Type **PER: Nilo-Saharan: Maasai ó-*pɪ́ró* 'feather', Bari kʊ-*pɪr-* 'feather, hair'
Niger-Kordofanian: Mbum *for*, Kali *poro / mbore* 'feather'
Afroasiatic: Akkadian *pēr-et* '(head) hair', etc.
Nostratic: Russian *peró* 'feather', Sanskrit *parṇa-* 'feather, wing',
English *fern* ('feather plant')
Indo-Pacific: Tasmanian *pu:erɪna ~ pu:irɪ(na) ~ poɪrena ~ pareata*
'feather, hair'
Amerind: Witoto *iporo ~ iɸoro* 'feather', Kandoshi *poro* 'hair,
feather', Quechua: Cochabamba *p*^{h}*uru* 'feather'

Type **PEL: Nilo-Saharan: Fur *fìla,* Sara *bɛ̀l* 'feather'
Niger-Kordofanian: Bantu **-budi* = **-buli* 'hair', Kole *pulpul* 'feather, wing'
Afroasiatic: Akkadian nu-*ball-* 'eagle feather', Afar *bal* 'feather', Nefusa tə-*bulbul*-ət 'feather'
Nostratic: Latin *pilus* 'hair', *plūma* 'feather', English *fleece, fly, fowl*
Dene-Caucasian: Basque *bilho* 'hair', Lak *p'iħulli* 'feather', Burushaski *pholγó* 'feather'; Mnyamskad *pul* 'feather', Midzhu *bul* 'feather, wool'
Austric: Austronesian **bulu'* 'hair, feather'; Bonda *bileʔ* 'feather'
Indo-Pacific: Tasmanian (ME*)* *poilina* 'wing', (ME, W) *pəle* 'hair'
Amerind: Tunica *puli ~ pulo* 'plumage, hair', Alsea *pəlupəlu* 'feather'

Type **PEN: Nilo-Saharan: Nera te-*fene* 'feather', Karda dɪ-*fɪn* 'hair'
Nostratic: English *fin* ('wing' of fish), Latin *penna ~ pinna* 'wing, feather, fin'; Manchu *fuńexe* 'hair', Old Japanese *pane* 'feather'
Austric: Bahnaric **pənar* 'wing'
Amerind: Moseten *pañ* 'feather', Mayan *pehpen* 'butterfly'

2. Types **KET ~ **KER ~ **KEL ~ **KEN 'knee/elbow':

Type **KET: Nilo-Saharan: Nandi *kutuŋ* 'knee', Debri *kwutu,* etc.
Niger-Kordofanian: Bantu **-goti* 'knee', Twi *koto*-džwi 'knee'
Amerind: Algonkian **ketekwi* 'knee', Atakapa *ikat*, Dzubucua *kudu* 'knee'

Type **KER: Nilo-Sharan: Zaghawa *kurru*, Fur *kuru* 'knee'
Niger-Kordofanian: Mbum *kor* 'knee', Kali *kur* 'knee'
Afroasiatic: Kabyle *keref* 'to bend the knee', Iraqw *gurungura* 'knee'

Type **KEL: Niger-Kordofanian: Kutin *kule* 'knee', Ewe *klo* 'knee', Bantu **-kokuda* = **-kokula* 'elbow'
Afroasiatic: Saho *gulub* 'knee', Gerka gan-*gwal* 'elbow'
Nostratic: Russian *koléno* 'knee'
Amerind: Costanoan: Monterey *kullub* 'elbow', Klamath *qolinč* 'knee'

Type **KEN: Nilo-Saharan: Dinka *kon* 'arm, elbow, knee', Maasai *kúŋú* 'knee'
Niger-Kordofanian: Yoruba *ekun* 'knee', Grebo *kona* 'knee', Pam *gooni* 'knee'
Afroasiatic: Ngomvia *uguno* 'knee', Beja *genaf* 'to kneel'

Nostratic: English *knee,* Greek γόνυ 'knee'; Hungarian
könyök 'elbow'
Austric: Bahnaric **kɛːŋ* 'elbow'
Amerind: Coast Yuki *k'enk* 'knee', Quechua *kuníxa* 'elbow', *kungúr*
'knee', Witoto *káíńɯ* 'knee'

In Proto-Human apophony of vowels and consonants was used to encode semantic and morphological distinctions. For example, the functional alternation of r ~ l is still found in some languages to this day, e.g.:

Basque *bero* 'hot' ~ *bello* [bel^{y}o] 'hot' (speaking to child)

A similar diminutive connotation of this alternation is still productive in other European languages, e.g., in proper names and their diminutive or affective variants:

English *Sarah* ~ *Sally*

Swedish *Pär* 'Peter' ~ *Pälle* 'Petie'

Basque *Peru* 'Peter' ~ *Pello* 'Petie', etc.

(See Roger Wescott's articles in this issue for more examples.) As languages diverged from Proto-Human and linguistic history progressed, many of the original meanings of the alternations were forgotten, and variants survive in modern languages more or less sporadically.

The Bronze Age and Early Iron Age Peoples of Eastern Central Asia. 2 Vols., Ed. by Victor H. Mair. (Journal of Indo-European Studies Monograph No. 26.) Washington / Philadelphia: The Institute for the Study of Man / The University of Pennsylvania Museum Publications, 1998. 899 pp.

Reviewed by Daniel F. McCall
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There is a long swath of steppeland and desert in the middle of Asia, the region Owen Lattimore felicitously called the Inner Asian Frontiers of China. The prehistory of this region of eastern central Asia recently became more accessible to scholars around the globe by the dissolution of the Soviet Union, which included parts of the region, and by partial easing of the policy of China toward permission for foreign researchers to work inside its borders.

An International Conference on the Bronze Age and Iron Age Peoples, involving scholars in several disciplines and from fifteen countries, was held at the University of Pennsylvania Museum of Anthropology and Archaeology in 1996; the presentations given there provide the basis of these two volumes. A few of the papers presented did not make it into this publication, but a few others relevant to the topic were added, making a total of 45 chapters, plus an Introduction by the convenor and editor, outlining the issues, and a Conclusion, which attempts a consilience of as much of the materials and interpretations as he found possible. An appendix gives the Chinese characters, Pinyin romanization, and the name in common English usage of sites, other places, and peoples pertinent to the focus of the conference. Maps, tables, and illustrations are copiously provided.

The cover design amplifies the title: a clothed mummified body, metal axes in an archaeologist's drawing of side and top views, an outline map of the present boundaries of China and the 'silk route' leading into it. The photograph of a Xinjiang mummy indicates one of the principle foci of discussions. It was the discovery of mummified bodies of 'Europoid' type, in association with Bronze Age artifacts, that recalled attention to the Tocharian language of Buddhist documents in the same region which were revealed early in this century, and soon classified as Indo-European (IE); also to the Chinese texts of Han period describing Yuezhi (Yueh-chi) people, with their peculiar coloration of red hair and 'green' eyes. All of these share the common area of the oasis-studded desert of the Tarim Basin of Xinjiang, but have tentacles in several directions. The space coördinates which these reports cover include the steppelands from the Ukraine to Mongolia, and adjacent deserts in Central Asia, with linkages to neighboring regions. Time dimensions, established by C_{14} for artifacts associated with mummies at c. 2000 BCE to c. 100 BCE, and linguistic estimates of historical depth for language groups, focus at least as early as mid-first millennium BCE, when pre-Qin onomastic loanwords from Tocharian came into Ancient Chinese, and a millennium earlier for chariot terminology from the same source.

An epoch of this size involves climatic fluctuation, ecological adjustments, cultural evolutions, language change, an emergence from prehistory to history. For that compilation of factors many specializations of scholarship are needed. Different terminologies in the various disciplines and variant traditions in academic institutions of East Asia, Russia, Europe, and America, as well as a plethora of languages, modes of translation, and plurality of orthographies, may be involved in the convergence or divergence of personal judgments and interpretations of the scholars.

Some of the papers are closely focused on technical discussion of a single type of data; others are concerned to synthesize information from one or several disciplines, but all presuppose a diachronic development of a congeries of peoples and cultures in eastern central Asia, with relations of some kinds with peoples on all sides, and particularly with China. Some papers are 'user-friendly' for listeners or readers of other disciplines: for example, Paolo Francalacci, in the first paper in the genetics section, is laudable for the lucid explanation of the processes, as well as results, in his analysis of DNA from mummies in Xinjiang. This is of great educational value to the non-geneticists (the great majority of the conferees). The same cannot be said for the first paper in the linguistics section; Eric Hamp seems almost striving for obscurity. Perhaps this did not hamper other linguists, but it hardly seemed in the spirit of a multi-disciplinary conference.

Ten papers on Archaeology, then five under the rubric of Migration and Nomadism, and eleven on Linguistics comprise Volume I. Genetic and Physical Anthropology (three papers) begin Volume II, then four on Metallurgy, two on Textiles, two on Geography and Climatology, two on History, three on Mythology and Ethnology, followed by the Conclusion of the editor.An attempt to adequately summarize such rich and varied discussions would fail; what follows is an effort to provide an overview of the issues, new data, and perspectives.

An Zhimin provides a summation in English of reports of his and other Chinese publications on the Bronze Age in the Tarim Basin, which is a good point of departure for subsequent discussions on archaeology. He specifies and describes ten regional clusters of Bronze Age culture, which by means of C_{14} dates can be divided into three periods: c. 2000-1500 BCE; c. 1500-1000 BCE; and c. 1000-400 BCE, but a couple of sites straggle into the Common Era. Qawrighul, beginning somewhat prior to 2000 BCE, is the earliest and longest lasting, ending c. 250 BCE; only one other, Yanbulag, starts before 1500 BCE and survives about half as long as Qawrighul. The others are all later and shorter lived.

E.E. Kuzmina does a similar review of Russian publications, and, like An, relates these less accessible works to literature in western European languages. Qawrighul culture, Kuzmina reports, has clothing similar to that of Andronovo, but "metal articles forged of pure copper that are characteristic of Afanasievo," which, with other facts, "allow us to hypothesize that Qawrighul burials can be connected with the Afanasievo culture." This makes more precise an earlier judgment that the "Europoid complex ... was characteristic of the population of Western Siberia, Tuva, Mongolia, and Eastern Turkestan." Kuzmina offers an overview of migrations in Central Asia in the Bronze Age.

David W. Anthony reviews the evolution of wheeled transport, the achievement of the fast, lightweight chariot, and its impact on the cultural and linguistic history of Eurasia, with specific archaeological and ethnic references.

Asko Parpola encompasses a good deal of what the preceding archaeologists have covered, but with considerably more concern for the origin of Proto-Iranian, and how it spread. "Significantly," he says, "only Proto-Aryan among the early offshoots of Proto-Indo-European has a word for 'war-chariot." He also stressed that Qawrighul I, 2000-1500 BCE, is related to Afanasievo "through the physical type of the bodies," but Qawrighul II graves have "Andronovo-like physical types and resemble Andronovo burial traditions."

Fredrik T. Hiebert also focused on Indo-Iranian expansion. He starts off with an outline of the problems in attempting to relate archaeological data with linguistic data: people with similar cultures but different languages, etc. He notes that "ethnicity and language are separate phenomena and must be separate cases of correlation with the material record." He outlines the archaeological assemblages of Iran and Central Asia, and then appeals to a model of language shift and religious conversion, as "more appropriate than a model of mass migration" to argue that Iranian speakers absorbed the Bactrian-Margiana Archaeological Complex (BMAC) peoples. This may well have happened, but his "historical analogy" is unfortunate: in West Africa, a number of "Islamic traders and sufis, around whom gathered customers, disciples, and converts" brought about a "process of linguistic and religious change" which he says is "explicitly recorded in historical documents." He cites the works of three Africanists, but he must have misunderstood the language part; there was religious change, but only a small number of individuals, mostly of the *ulema* clerical class, learned Arabic as a second language. There were few loan words from Arabic into local languages; e.g., 'cotton', which was introduced into the area about the same time, appears today in an Arabic-derived form only in Kanuri. The other languages have a variety of innovated terms from their own verbal resources.

Shui Tao elucidates for us the relationship of the Tarim and Fergana basins, almost exclusively from Chinese sources, which brings to the fore some differences in dating among archeologists of different training: divergences exist between the calculations of Russian, Chinese, and Western scholars. Shui gives "the first half of the first millennium BCE (or perhaps even earlier in the second half of the second millennium BCE) when some Caucasian people ... crossed the Pamirs and entered the ... Tarim Basin." Even his "perhaps" is later than some other dates offered at the conference for this event.

He Dexiu finally brings attention to the mummies, which are one of the attractions of this area; the desert soil caused a natural mummification which eventually people assisted with some measures less ample than those developed in Egypt.

J.P. Mallory considers the cultural and geographical differences between "European and Asian stocks" as a means of clarifying the distribution of all Indo-Europeans. He finds four fault lines and explores the way they were "transgressed." The first fault line is "conceptual," the others geographical. The conceptual one is the alleged split between an "Asiatic 'steppe' versus the European 'sown'." This he 'demolishes' with shared words in all IE branches for each species of livestock, and 20 words relating to farming with "cognate sets of at least one European and one Asiatic language." The Dniester/Dnieper Line divides populations with a greater emphasis on farming from those who cultivated river valleys but additionally exploited the open steppe. The archeological cultures here were the Yamna and Sredny Stog. East of the Ural Line were Andronovans, presumed to be proto-Iranian, organized as confederations of mobile tribes, though there was also some irrigation in Central Asia a millennium earlier than in Xinjiang. The problem is getting the Tocharians, with their distinctively non-Iranian speech, east of the Iranians. Different suggestions are reviewed. An east-west Central Asian Line separates the steppe on the north from Central Asian urban sites, the inhabitants of which are not believed to have been IE speakers. The ultimate presence of Indo-Iranians south of this line in historic times involves the problem of how the BMAC population became Iranian speakers, for which Mallory has a different solution than Hiebert's. He applies the model of Gimbutas for the expansion of Kurgan culture; she used it as a movement from the Pontic steppes into Western Europe, a process of a series of 'Kurganized' cultures gradually pushed westward by pressure from the east, each wave more Kurganized than the last. He argues a similar pressure southward from a somewhat more easterly point of departure.

Colin Renfrew, against whose position Mallory's text was in part an argument, reiterates his claim that Indo-European originated in Anatolia, this time with some refinement: Pre-Proto-Indo-European was in Anatolia, where it split with Proto-Indo-European's main branch moving to the Balkans, while the ancestors of Hittite and Luwian remained in place. The Balkan groups split in two: one moved to central and eastern Europe, the other to the Ukraine and eastward, but in addition Mycenean Greek moved south in the Balkans.

"Migration and Nomadism" has been invoked in several of the preceding chapters, and will be in the Linguistics section, but now for five chapters these factors are given sharper focus. K. Jettmar critiques suggested migratory paths deduced from the sequential influence of other Indo-European languages, and of Uralic, Turkic and Chinese, on Tocharian. Shishlina and Hiebert propose models of development of pastoral societies. Davis-Kimball considers tribal interaction on the steppes, styles of art and artifacts distributed by trading, raiding and integration of confederacies. Chang and Tourtellotte focus on agro-pastoralism in the seven rivers region of Kazakhstan over a millennium, beginning about 600 BCE. Tzehuey Chiou-Peng finds steppe affinities in western Yunnan.

Eric Hamp examines linguistic vagaries of diagnostic criteria in discussions of Tocharian. W. Winter looks at lexical archaisms in Tocharian, which, he concludes, substantiate an early separation from proto-IE. D.Q. Adams explicates the significance of some agricultural terms in Tocharian. A. Lubotsky finds loan-words from Tocharian in Old Chinese: chariot, chariot gear, and town building. Lin Meicun also finds early loan-words in Ancient Chinese. D. Ringe et al. plot the position of Tocharian within IE by computational cladistics. J. Janhunen reviews linguistic evidence for the horse in East Asia. J. Colarusso looks for onomastic evidence of a non-IE substrate in Tocharian. Penglin Wang examines Inner Asian ethnonyms. K. Tuite proposes prehistoric links between the Caucasus and Central Asia on linguistic evidence.

The "Three Windows on the Past" which William S-Y. Wang offers us are three computations of the quantitative data that have been generated within three disciplines: archeology, linguistics, and genetics. He compares the genetic distance of 74 populations in various areas of China with an "average linkage analysis" of measurements of fossils from neolithic sites in China, and notes that both show a sharp division between north and south. After a discussion of languages pertinent to China's past, Wang engages in an "experiment" which is different in focus from his other two computations: he uses "methods of phylogenetic systematics" involving lexicostatistics, glottochronology, and other numerical methods, and this time produces "additive trees for Sinitic, Indo-European, and Sino-Tibetan languages." The Sinitic tree shows a difference between northern and southern languages, agreeing with his other analyses, but his three language trees go beyond his genetic and human fossil expositions: he finds that Sinitic is about the same age as Germanic (each c. 2000 years), and that Indo-European is "roughly three and a half times that deep," and he weighs this against the conflicting estimations given by Gimbutas and Renfrew, finding that his result (based on data "not ideal for the experiment") is "between the two proposals." And "it appears that Sino-Tibetan is a younger family than Indo-European, by perhaps 1000 years or more." This, the last piece in volume I, is an appropriate transition to volume II, which begins with Genetics.

Volume II begins with Francalacci's mtDNA analysis of mummies, placing the samples in haplogroup H, which is "in agreement with a possible European origin." Tongmao Zhao measures the proportion of Caucasian genetic admixture to Turkic-speaking Uighurs. Han Kangxin provides comparisons of the anthropometric dimensions of skulls from various cemeteries in the Tarim Basin and nearby areas, and concludes that "until at least several centuries BCE the eastward movement of the Western race to Xinjiang was more active than the westward movement of Mongoloid people."

Ke Peng describes bronze artifacts of Andronovo style found in Xinjiang, demonstrating that there was "a passageway for cultural relations between Kazakhstan and Xinjiang during the second half of the second millennium BCE"; the axes on the cover are his drawings. Jianjun Mei and Colin Shell summarize recent results of excavation of Bronze Age sites in Xinjiang, revealing mining and smelting as early as 2000 BCE, and existence of three centers of production. Iron appears c. 1000 BCE. Emma C. Bunker concludes that evidence suggests use of gold was introduced into dynastic China during the latter part of the second millennium BCE from non-Shang peoples of the Tarim Basin. Katheryn M. Linduff considers trade across frontiers, particularly between the Yellow River valley and the Central Plain to its west.

E.J.W. Barber compares Hallstatt plaid twills and the Tarim ones. If they are "directly related," the people bearing this textile technology ("in the most reasonable scenario") spread east and west from somewhere around the Caucasus during the 3rd or 2nd millennium BCE. Irene Good points out that Tarim textiles are the largest cache of prehistoric cloth in the Old World, and analyzes the wool in regard to the kind of sheep that yielded it.

Harold C. Fleming focuses on Central Asia as a vortex of prehistory, and enumerates the ways of tracking past events, and proceeds to "pour" into specific regions the artifactual, linguistic, cultural, and ethnic data, each in chronological order. Kenneth J. Hsü questions whether climatic change caused Xinjiang Indo-Europeans to migrate.

Michael Puett reviews recent studies of China in early Eurasian history. E Bruce Brooks examines textual evidence of Sino-Bactrian contact in the 4th century BCE.

Denis Sinor asserts "myths have a longer life than humans or their artifacts." He finds that the Chinese as well as the Greeks and Lapps had stories of Pygmies in the Land of Cranes. C. Scott Littleton uses the label "Epi-Scythians" for the IE peoples "beyond" the Scythians. Folklore motifs concerning British King Arthur, Japanese Yamato-takeru, and some heroes in between seem to point to a Northeast Iranian prototype. Chen Chien-wen looks in Chinese historical records for racial, cultural, and ethnic affinities of the Yuezhi. Were the Yuezhi Turkic or Indo-European? Dolkun Kamberi traces the emergence of the Uighur people in the Tarim area, where a number of early kingdoms once flourished. Dru C. Gladney outlines the ethnogenesis of Uighurs and Kazakhs and their relation to the Chinese nation-state.

Victor H. Mair's concluding piece is an "archeolinguistic parable" in which he juggles the linguistic and archeological data, putting together what seems to fit, and adding the genetic, ethnological, and other information in a chronological schema which utilizes as much as possible of the disparate contributions of the conferees and his own studies.

In just under nine hundred pages, an integration has been approached, if not quite achieved, of disparate materials from several disciplines to provide a diachronic overview of the area of Eurasia that has been historically the most obscure. Where we get to, despite some disagreements among specialists, is that the Eurasian steppe has been a place of ecological adaptations by ancient peoples permitting population growth, which in turn fueled territorial expansions. The earliest movements in the region under scrutiny became clearly perceptible in the Bronze Age, with an eastward tendency, and ultimately a reversal in direction. Each of the expansions had a linguistic dimension: Indo-European to the east; Turkic to the west. The Iron Age began here about as early as in the Eastern Mediterranean, a co-eval occurrence that suggests cultural contacts; an occasional style element supports such a linkage. Early interaction with China, both in the Huang Ho and in the Yangtze valleys, is demonstrated by loan-words as well as aspects of metallurgy and a few old documents. The importance of chariot technology and later of equestrian tactics in these developments is crucial.

More genetic analyses are desirable, but already mtDNA of the mummies supports, as a supplementary datum, the argument -- long since made -- that Tocharian is likely to be the language of the Yuezhi, and if so, must have been in the area long before the period of the documents referring to the Yuezhi, and now, by the dating of the earliest of the mummies, long before those documents.

Weaving techniques and cloth pattern similarities between Xinjiang textiles and Hallstatt cloth, both of comparable Bronze Age vintage, now complement the linguistic closeness of Tocharian to Celtic.

East is still East, and West is still West, but the geographical line between them has shifted in the past more than has been generally realized, while the cultural isolation has not been as absolute in antiquity as some have maintained.

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Indo-European, Nostratic, and Beyond: Festschrift for Vitalij V. Shevoroshkin. Ed. by Irén Hegedűs, Peter A. Michalove and Alexis Manaster Ramer. (Journal of Indo-European Studies, Monograph Number 22.) Washington, DC: Institute for the Study of Man, 1997. viii + 348 pp.

Reviewed by Roger W. Wescott
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This rich collection of linguistic speculations consists of an introduction, a bibliography, and twenty-three thought-provoking articles.

The Introduction is a brief biography of Soviet-born Vitaly Shevoroshkin, with a message of congratulations and best wishes on the occasion of his sixty-fifth birthday.

The Bibliography is a selection of sixty of Shevoroshkin's publications between 1957 and 1993.

The first contribution, by Raimo Anttila, is entitled "Beating a Goddess out of the Bush?" As the question-mark suggests, it is a puzzler. Beginning with paradigmatic suppletion in Indo-European, it proceeds to an exploration of erotic metaphors that seem clearly to be pre-Indo-European.

The next contribution, by Václav Blažek, is entitled "Indo-European 'Seven'." Noting that *septm̥ or its variants are pan-Indo-European, he further observes that similar forms for the numeral 7 are found in Uralic, Kartvelian, Afrasian, Etruscan, and Basque. Semantically, he associates the number with the Indo-European verbal base *sep 'venerate'. (Although Blažek does not suggest it, I would add that the Old Lithuanian *sẽkmas*, 'seventh', has the same relation to *sak, 'sanctify', that Latin *septem* has to *sepulcrum*. Moreover, I see this parallel as more than analogical, exhibiting the same horizontal type of consonantal apophony seen in English *damp/dank* or *gawp/gawk.*)

In "The Phonotactics of Sumerian," Claude Pierre Boisson suggests that the apparent tendency toward vowel harmony in Sumerian may be an artifact of the cuneiform syllabary, which would predictably incline Sumerian scribes to write /ur/, 'city', as <u-ru>.

In "The Myth of the Primordial Click," J.C. Catford rejects the wide-spread assumption that the suctive obstruents of Khoisan and southern Bantu are typical of prehistoric speech. Noting first that no non-human primates use clicks, he goes on to observe that similar consonants, such as the implosives of Sindhi, can be shown to be not only rare but recent.

Writing on "Panini and the Distinctive Features," Madhav M. Deshpande asserts that Panini's ancient phonological analyses seem thoroughly up-to-date in terms of current descriptive linguistics (a view which was already commonplace in the 1940's).

Asking "Does Altaic Exist?," Joseph H. Greenberg answers in the affirmative, citing as his primary evidence the ubiquity of the alternative forms *bi* and *men* for the first person pronoun in Turkic, Mongolian, and Tungusic.

In "A Far Out Equation," Eric P. Hamp derives Albanian *zot* 'lord' from reconstructed *wikā-p(o)ti- 'house-master,' basing this improbable-looking derivation on the acknowledged derivation of Albanian *zet* 'twenty' from reconstructed *wikmti.

Reflecting "On Grammaticalization in Nostratic," Irén Hegedűs derives the reconstructed locative suffix *da in Proto-Kartvelian and Proto-Altaic from a reconstructed Proto-Nostratic free form *daḲa 'nearby'. (The idea that affixes are reduced forms of once independent words is a venerable 19th century notion, and one with which I concur. In this particular case, however, it seems to me to be at least equally likely that *da-Ḳa is a compound or complex form, combining one morpheme indicating location with another indicating propinquity.)

In "Three Kisses," Pramila Hemrajani distinguishes the familar European lip-kiss not only from the Eskimo nose-kiss but also from the East Asian tongue-and-tooth kiss, recommending that linguistic and cultural geogrpahers map the domains of these practices. At first the author seems to imply that the lip-kiss means only lip-to-lip kissing, but later enlarges her purview by reference to practices like kissing the ground. (Such expanded consideration inevitably suggests inclusion of oral-genital contact, "brown-nosing," and the like. These possibilities clearly complicate her initial tripartite arrangement, inviting not only a more intricate cultural geography but also a more elaborate corporeal topography.)

Peter Edwin Hook's "Relative Clauses in Eastern Shina" treats a Dardic (Indo-Iranian) language of Central Asia, concluding that its relative clauses differ from those of northwestern Indo-Aryan languages in that, while it permits clausal gender-number concord with the head-noun rather than with the clausal subject, it exhibits participial agreement with the clausal subject.

In "Luwian Collective and Non-Collective Neutral Nouns in -AR," Vyacheslav Vs. Ivanov suggests that Anatolian nouns having endings cognate with the suffix of English *wat-er* belong to an archaic stratum of Indo-European.

In "Macrorelationships and Microrelationships and their Relationship," Brian D. Joseph argues that Faliscan, though closer to Latin than to Oscan, cannot be treated as an archaic Latin dialect. In more general terms, he holds that many similarities between languages which appear to be shared innovations, suggestive of special subgrouping, may actually be shared retentions, indicative only of a more remote kinship.

Mark Kaiser's "Rigor or Vigor: Whither Distant Linguistic Comparison?" is a discussion of the unfortunate polarization of opinion on remote language kinship. Kaiser seeks to steer a middle course between credulity and scepticism. With regard to Nostratic, he focuses on the discrepancy between the stop system proposed by Vladislav Illič-Svityč and that proposed by Allan Bomhard. Both attribute to Proto-Nostratic three stops in each articulatory position, one plain, one voiced, and one glottalized. But Illič-Svityč derives the plain stops of Proto-Indo-European from the glottalized stops of Proto-Nostratic and the voiced stops of Proto-Indo-European from the plain stops of Proto-Nostratic, whereas Bomhard does the reverse. In the face of this chiasm, Kaiser opts for the Illič-Svityč pattern of correspondence. (One might think that such a fundamental phonological contradiction as this could readily be resolved by empirical means. My explanation of what appears to be occlusive chaos is that both Proto-Nostratic and Proto-Indo-European exhibited consonantal apophony, in accordance with which stops of one type alternated systematically with those of another. Examples from Proto-Indo-European are: *pak- 'fasten' ~ *bak- 'peg'; *pet- 'wing' ~ *ped- 'foot'; and *kel- 'hot' ~ *gel- 'cold'.)

In "Vedic *mriyáte* and Other Pseudo-passives: Notes on an Accent Shift," Leonid Kulikov contends that verbs of the *mriyáte* type, though passive in accentuation, were middle-voiced in meaning.

"The Polygenesis of West Yiddish -- and the Monogenesis of Yiddish" by Alexis Manaster Ramer and Meyer Wolf is a plea for more Yiddish studies which, despite a century of cultivation, remain embryonic. Ramer maintains that the oldest split among the Yiddish vernaculars occurred along the Elbe River rather than, as traditionally believed, along the Oder.

In "Etymological Problems with Words for 'Blood' in Nostratic and Beyond," Karl Heinrich Menges asserts cognation between Tungus *sē* 'blood' and Proto-Indo-European *sei- 'drip'. (This cognation may reflect a wide-spread archaic penchant for ritual blood-letting.)

When Peter A. Michalove writes on "Altaic Evidence for Clusters in Nostratic," the text makes it clear that he is referring solely to consonant clusters, not to clusters of vowels or suprasegmentals. He rejects the nine Nostratic affricates posited by Illič-Svityč and replaces them with sequences of sibilant-plus-stop, of a type common in Proto-Indo-European.

Vladimir Orel's "New Albanian Etymologies" include thirty revised derivations for words beginning with the first seven letters of the Latin alphabet. Of these, the most interesting to me were *dërgoj* 'send' and *(v)enjë* 'juniper'. Orel derives the verb from Latin *dēlēgare* rather than from Latin *dīrigere* (whereas I prefer to regard it as a blend of both Latin verbs). The optional initial *v-* of *(v)enjë* reminds one of the numeral pronounced /wən/ in English and *vienas* in Lithuanian, in contrast to the conventionally reconstructed form *oinos for Proto-Indo-European. (Thus *(w)oinos, in conjunction with *(w)esu 'good' and *(w)ers- 'wet', suggests alternation between labialized and unlabialized faucal obstruents in Proto-Indo-Hittite.)

Ilia Peiros contributed "Macro-Families: Can a Mistake Be Detected?" In it, he expresses a preference for the reconstructions of Sergei Starostin as against those of Paul Benedict. He concludes that sytematic sound-correspondences must be established before a macro-family can validly be postulated (a view that allies him, at least implicitly, with Americanist critics of Greenberg's Amerind phylum).

Writing "On Pronominal Systems," Richard A. Rhodes rejects the view that pronouns are so stable as to constitute prima facie evidence of remote linguistic affinities (and thereby, like Peiros, places himself in implicit opposition to Greenberg's mass-comparison method). He finds pronouns to be the least marked phonically of all grammatical classes, with a heavy preponderance of the "primal" vowels *i, a,* and *u,* and of glides and nasals. In classifying pronominal systems, he recognizes only two categories: full, exhibiting three persons, and restricted, exhibiting two persons. (Here I believe that he has omitted a third type of system, which we might call expanded. For example, in Bini, an Edoid language of southern Nigeria, there are four singular pronominal prefixes: *i-* 'I'; *u-* 'thou'; *o-* 'he, she, or it'; and *a-* 'one'. The fourth prefix, which is indefinite in reference, could well be labeled fourth person.)

Merritt Ruhlen's article is entitled "Proto-Amerind *KAPA 'Finger, Hand' and Its Origin in the Old World." In it, he compares forms such as Wintun *k'op* 'hold' with Illič-Svityč's Nostratic verb *ḳaba /*ḳapʻa 'seize' and his noun *Käpʻä 'paw'. Ruhlen concludes that Amerind is, of all macrophyla, closest to Nostratic, alias Eurasiatic. (To the alternation between *p* and *b* which Ruhlen cites, I would add an alternation with *m*, exemplified by Ruhlen's global reconstruction *KAMA 'hold', cited by both Bomhard (*k'um-/*k'om-) and Illič-Svityč (*kamu) in Nostratic, and surfacing in Proto-Indo-European as *kem- 'squeeze' and *kom- 'together'. Analogous stop/nasal alternation appears in Proto-Indo-European *ap- 'strong' and *abh- 'power', vis-à-vis *am- 'hold', as also in English *Peg/Meg* or *slap/slam.*)

S.A. Starostin writes "On the 'Consonant Splits' in Japanese." He notes that Proto-Altaic *b may appear in Japanese as *p, *b, or *w; *d as *t, *d, or *j; *r as *t or *r; and *ń as *n or *m. Yet all these seemingly capricious divergences, he holds, are phonologically conditioned, in ways which he specifies. He concludes with the observation that, of all Nostratic language families, Uralic and Altaic are most conservative of Proto-Nostratic vocalism and root-structure.

In "Some Japanese Etymologies," Alexander Vovin contends that some Japanese words of uncertain origin, commonly believed to be Austronesian, are actually of Altaic provenience. Among these arguable lexical items are *ki* 'tree', *dare* 'who', *te* 'hand', and *mono* 'thing'. In discussing *te*, Vovin notes what he calls "a unique 'floating' correspondence /t/:/s/" both within and among Japanese, Korean, and Tungusic. (Apical stop/fricative alternation is hardly unique in any language group. In Proto-Indo-European it appears in *so-/to- 'that', or in *tu-/-si 'thou'. In Proto-Uralic, it appears in *sulka/tulka 'feather' and in *sä 'it' vis-à-vis *tä 'that'.)

Typographical errors are happily few in this volume. Most, such as "lead" for "led" or "Carrian" for "Carian" (in the Introduction), are readily disambiguated by context. Only on p. 188, where Kaiser's diagram of Proto-Nostratic stops is spatially skewed, are three major branches of Nostratic visually confused with one another.

Of the twenty-three articles contributed to this Festschrift, the eight which which appealed most to me were those by Blažek, Boisson, Catford, Kaiser, Michalove, Rhodes, Ruhlen, and Starostin. All of these offered what seemed to me to be fresh insights or, equally valuably, cleared away long-standing misapprehensions. For a combination of breadth and originality, Václav Blažek's "Indo-European 'Seven' " is, I think, a contribution without equal.

For any reader interested in transcending the traditional taxonomic wall separating Indo-European from other linguistic studies, this volume, I believe, is an intellectual feast.

Remarks on *A Comparative Vocabulary of Five Sino-Tibetan Languages,* by Ilia Peiros and Sergei A. Starostin. University of Melbourne, 1996.

by Paul K. Benedict

[This brief review is based on a letter from Paul K. Benedict dated June, 1997, thus only weeks before he died in July 1997. The letter was written in Benedict's familiar style - laced with abbreviations, acronyms, and colloquialisms - well known to *Mother Tongue* readers, and was stimulated by a preprint of my review in the *Journal of Chinese Linguistics.* Because of Benedict's strong opinions on the book (see especially the last paragraph) we feel duty-bound to pass these parting thoughts on to our readers, with some necessary editorial changes and clarifications. JDB]

Jim [Matisoff] and I are in substantial agreement on pretty much all aspects of ST [Sino-Tibetan] reconstruction, as embodied in STC (and my 1976 JAOS paper), with Jim doubting my two-tone reconstruction. (This is completely ignored by Peiros & Starostin?) I'm sure we'll also agree that the basic phonology shown in this work is a **disaster!** Some years ago this same team turned out a paper in support of my AT [Austro-Thai] so badly done that I never even list it, despite its support! Now ST is on a lower level, what Jim [Matisoff, 1990] calls **mega-,** rather than **megalo-linguistics**, but still they've come up with another **catastrophe!** Let's face it: they're what Jim calls **micro-linguists!**

They did do one smart thing: copied from STC its choice of key languages! (Failure to get Lepcha material is serious, since many 'gaps' are filled here!) You show their consonants, but they handle vowels almost as poorly (hard to match)! As you indicate, they've also missed a good deal - much of mine in unpublished ST conference papers, apparently unknown to them! You note my "qualms" about the uvulars [reconstructed by Peiros and Starostin] - gotta make it a lot stronger than that!

And I gotta comment on [the] last sentence! "A giant forward step in ST studies"?! I can only comment that with more giant steps like that we'll soon end up in the Dark Ages!

And "destined to become the standard reference work in the field"?! This might well be said of Jim's STEDT, carrying on the STC tradition, but - like in that famously cited political debate - I know Matisoff - and Starostin and Peiros are no Matisoff!

I do think that you should do something about all this, for the benefit of long-rangers all over the world, warning them about this **catastrophe** (we really need a stronger word!). This is not really my thing - Jim has aptly pointed out that I'm good at what I do, but terrible at almost everything else (and he's an old friend of mine!). Maybe he'll have some idea about this - maybe also about JCL! But long-rangers must learn about it!

ABBREVIATIONS

AT	Austro-Thai (macro-family); also = Benedict 1975
JAOS	*Journal of the American Oriental Society*
JCL	*Journal of Chinese Linguistics*
ST	Sino-Tibetan
STC	*Sino-Tibetan: a Conspectus* = Benedict 1972
STEDT	*Sino-Tibetan Etymological Dictionary and Thesaurus* ed. by James A. Matisoff

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Corrections and Clarifications

Some corrections and clarifications are in order, namely of (1) typographical errors in Sergei A. Starostin's review of Chirikba's *Common West Caucasian* in *Mother Tongue* (Journal) III, (2) typographical errors in Paul Whitehouse's article "External Relations of Nihali and Kusunda," also in MT III, and (3) Vitaly Shevoroshkin's comments on Christopher Ehret's "Nostratic - or Proto-Human," as reported in *Mother Tongue Newsletter* 31.

(1) After reading his copy of *Mother Tongue* (Journal) III (1997), Sergei A. Starostin wrote us to inform us of some mistakes in his review of V.A. Chirikba's *Common West Caucasian.*

One series of mistakes was caused by problems of electronic transmission: (a) throughout the text, the sign for long schwa {ə̄}appears instead of plain schwa {ə}; and (b) throughout the text, the sign for voiced lateral affricate {Ł} appears instead of what should be the sign for glottalized lateral affricate {ƛ̣}.

Others are: (p. 208) "where Abkhaz and Circassian have front affricates while Ubykh has palatalized" should be "where Ubykh and Circassian have front affricates while Abkhaz has palatalized"; and (p. 217) "In the first and fifth of these examples ..." should be "In the first and fourth of these examples ..."

Another problem: "My review contains a lot of page cross-references, where I had to omit page numbers (writing something like "above, p. ...) - since I had no information about the pagination of the issue. All those places are left as they are, with the reader being unable to trace any cross-reference."

(2) Less serious typos were found in Paul Whitehouse's article in MT III, page 7. In the sentence that reads "I am also able to confirm that Mundlay's -c- and -ɉ- are alveolar affricates (as in Midlands English 'hits' and 'kids'), while -č- and -j- are the affricates in 'hutch' and 'budge'" - the phonetic symbols should be "-c- and -j-" and "-č- and -ǰ-," respectively.

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(3) In Vitaly Shevoroshkin's report "1988 Symposium on Nostratic at Cambridge," in *Mother Tongue Newsletter* 31 (Fall 1998), pp. 28-32, the author made some comments on Christopher Ehret's "Nostratic - or Proto-Human?." After reading the report, longtime ASLIP member Ehret objected to the Editor that "my words say exactly the opposite of what [Shevoroshkin] claimed."

After re-reading Ehret's paper, and his clarification of what he meant, we agree that there was a serious misreading of Ehret's points, so much so that a special clarification is warranted:

First Shevoroshkin statement (p. 30): "Ehret ... wrongly maintains that 'systematic historical reconstruction will never be possible for more than 6,000 (or perhaps 8,000 or 9,000) years ago."

Actual statement by Ehret at Nostratic Conference (note second sentence): "We can hardly spend much time in our field of endeavor these days without encountering a peculiar and not very scientific mode of thinking. In this mode scholars may declare, as a kind of a priori assertion, that systematic historical reconstruction will never be possible for more than 6,000 (or perhaps 8,000 or 9,000) years ago. Or they may even construct theoretical frameworks for claiming that it should be impossible to do such work. This is rather as if the seventeenth- and eighteenth-century astronomers had decided that telescopes and our ability to use them would never improve, and that the only extra-terrestrial object we would ever be able to know much about was the near side of the moon. One can only wonder at what could possibly motivate such a self-defeating attitude toward one's own field of contribution to human knowledge."

Second Shevoroshkin statement: "He calls these cognates 'data of wider human occurrence,' which he explains by massive borrowings in prehistoric times."

Actual statement by Ehret in Nostratic Conference paper (note italicized clause): "In this light, it should not be surprising to find, in distant parts of the world, what appear to be the same words with their meanings fitting within the same narrow semantic ranges. This finding does not necessarily show a closer relation between the languages that have the words; *it does not show that borrowing has somehow been more massive and common than we thought;* and it does not show, either, that vocabulary is a suspect tool for classification and reconstruction. Rather, what we have to face is that we really may be dealing with very ancient human vocabulary."

(Additional clarification by Ehret: "By this I mean cognates inherited from a proto-Sapiens language, although one may have to read the surrounding material in the article for this meaning to be clear.")

{EDITORIAL NOTE: Vitaly Shevoroshkin has recently informed the Editors of *Mother Tongue* that he is sorry about the misunderstanding.

It is clear that Ehret accepts the idea that "cognates inherited from proto-Sapiens" can still be identified in modern languages, and thus agrees with Shevoroshkin and other Long-Rangers. Ehret's paper lists, for example, a comparison of "Nostratic *_pal_ 'to fill' (but outside IE usually 'much, many') ~ Nilo-Saharan *_pol_ 'much; of large quantity or size'." For an expansion of this comparison, see below:

Nostratic (*_ṗalV = p'alV_ per Illich-Svitych; *_p[_^{h}_]al-/_*_p[_^{h}_]əl-_ per Bomhard) is backed up by forms such as PIE *_p_^{ə}_lu-_ 'many', _pleʔ-_ ~ *_pelʔ-_ 'to fill' > English _fill, full,_ Greek πολύ, etc.; Proto-Uralic *_palya_ 'much' > Finnish _paljo_, etc.; Proto-Altaic *_püle_ 'to be enough, to be superfluous' > Manchu _fulu,_ etc.; Proto-Dravidian *_pala_ 'many, much, several' > Telugu _palu_ id. etc.; (? + Kartvelian *_pr-_ 'many, more', queried by Illich-Svitych, not included by Bomhard or Dolgopolsky);

Nilo-Saharan *_pol_ 'to grow (in number, size)' is backed by forms such as proto-Maa (Maasai) *_-bol-_ 'to sprout'; Acoli, Lango _po:l_ '(be) many' (< Proto-Nilotic *_pol_ 'much, many'); Uduk _poloS_ 'to swell, of seeds when about to sprout'; Maban: Mimi _bol_ 'much, many';

cf. further: Niger-Kordofanian: Malinke *bèle* 'much, many, richly', Twi *be-beree* 'many', Bozo *boro,* Fula *boi,* etc.

Dene-Caucasian: Basque *bil*-du 'to collect, gather', Burushaski (Hunza) *bil ~ bir-bir* 'full', di-*bir*-inas 'to be full, become full';

Amerind: Pehuenche *fil* 'all'; Cuna *pule ~ pelo* 'all'; Jicaque *pɨlɨk* 'many', Tequistlatec *ˀaš-pelaˀ* 'many', etc. (Greenberg);

Austric: Ainu *poro* 'large, great, much', *poron-no* 'many' (< **polo*); proto-Mon-Khmer (Shorto) **boor* 'to be plentiful' > Stieng *böl* 'many, numerous', Sre *bol* 'several', etc.; Austronesian **pəlpəl* 'to fill';

Indo-Pacific: Tasmanian (SE) **pāpĕla̱*, (ME) **pali̱* 'gross, dick, stark' (Schmidt); Andamanese: Aka-Kede *ot-pol-lɛ* 'many', nir-*pol* 'all', Aka-Bale *ar-pu:liʌ-dʌ* 'many', *pu:liʌ* 'all'.

Note also some forms beginning with a labial nasal (*m*):

Nilo-Saharan: Berta *mɪllaŋ* 'many, much, very', Kenzi *mallē* 'all';

Afroasiatic: Arabic *malān*, Hebrew *male'* 'full';

Nostratic: Latin *mul*-tu- 'many, much', Greek μάλα 'much, very'; Mongolic **mel*-te- 'to fill', Tungusic **mil*-te- 'full', Japanese *mi*-ti- (*michita*) 'full, be filled';

Amerind: Wappo *mul,* Clear Lake *mol* 'all', etc.

I believe Ehret, Shevoroshkin, and most other Long Rangers, would agree that at least some of these words are examples of what Ehret calls "cognates inherited from a proto-Sapiens language. JDB}